

Panasonic

DECEMBER. 2014



Broadcast and Professional Video Product Lineup



P2

VariCam 35	AJ-HPD2500
VariCam HS	AJ-HPM200
AG-3DP1G	AJ-PD500
AJ-PX5000G	AG-HPD24
AJ-HPX3100G	
AJ-PX800G	
AG-HPX610	
AG-HPX370 series	
AJ-PX270	
AG-HPX255	
AG-HPX250	

AVCCAM

AG-AC160A
 AG-AC130A
 AG-AF100A series
 AG-AC90A
 AG-HMC80 series
 AG-AC8
 AG-HMR10/AG-HCK10G



LCD Monitor

BT-4LH310
BT-LH2170
BT-LH1850
BT-LH910G

CONTENTS

P2

Memory Card Camera Recorder	03
Memory Card Recorder	06
Feature and Technology	07
Camera Recorder Comparison Table	11
Memory Card/Memory Card Adapter	13
Memory Card Drive	13
Other P2HD Equipment/Software	14
Professional Archive System	14
Optional Accessories	15
Partners	18
Recording Codecs and Proxy Modes	19
Specifications	21

AVCCAM

Memory Card Camera Recorder/ Portable Recorder	33
Technology and Features	35
Function Comparison Table	37
Optional Accessories	39
Specifications	40

LCD Monitor

LCD Monitor	47
Features and Functions	48
Dimensions	53
Supported Video Formats	55
Specifications	57
Optional Accessories	57

P2

AVCCAM

MONITOR



VariCam 35

4K Camera Recorder

35mmPL Lens

super35mm 1MOS

ProRes

expressP2/P2 x 2

microP2 x 2

AVC ULTRA

NEW

Revolutionizing the way Emotion is Created.
VariCam Look & Dailies in Camera.

- 14+ stops of latitude and Dual Native ISO.
- 4K/UHD-VFR recording: 1 fps to 120 fps.*1
- AVC-Intra4K recording (4:4:4 12 bit*1*2, 4:2:2 10 bit).
- Connectable with CODEX V-RAW recorder.*1
- In-camera Color Grading function.
- For HD recording, Apple ProRes support in addition to AVC-ULTRA.*1*3
- Dual codec recording as Main (4K/UHD/2K*1/HD) and Sub (2K/HD/Proxy).



NEW

VariCam HS

2/3-type HD Camera Recorder

2/3-type Lens

2/3-type 3MOS

ProRes

expressP2/P2 x 2

microP2 x 2

AVC ULTRA

Revolutionizing the way Action is Captured.
High Speed Recording up to 240 fps.

- 14 stops of latitude, "F REC" and "V-Log" gamma.
- Maximum 240 fps VFR recording: 1 fps to 240 fps.
- Visually loss-less quality codec AVC-Intra200.*1
- In-camera Color Grading function.
- For HD recording, Apple ProRes support in addition to AVC-ULTRA.*1*3
- Dual codec recording as Main (HD) and Sub (HD/Proxy).

VariCam Modular System NEW

AU-V35C1G

4K Camera Module

AU-V23HS1G

2/3 type HD Camera Module

AU-VREC1G

Recording Module

AU-VSHL1G

Shoulder Mount Module

AU-VCVF1G

Electronic HD Color View Finder

AU-XP0256AG

Memory Card "expressP2 card" (256 GB model)

AU-XP01

Memory Card Drive "expressP2 card drive"



3D
PROFESSIONAL

AG-3DP1G

Integrated Lens System

1/3-type 3MOS x 2

P2 card slot x 2

An Integrated Twin-lens Camera Recorder for Broadcast-Level 3D.

- 17x HD twin-lens system covers a wide shooting range.
- 3D assist functions for reliable and convenient 3D shooting.
- AVC-Intra codec records 1920 x 1080 full-pixel HD 3D with 10 bit 4:2:2 full sampling to deliver stunning image quality.

*Pictures are the example of the configuration using options.

*1: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). *2: Up to 30p of frame rate.

*3: ProRes is licensed from Apple Inc. The ProRes codec component is licensed from ATOMOS. *4: 60i, 60p, 24p, and 30p are actually recorded in 59.94i, 59.94p, 23.98p, and 29.97p, respectively.



AJ-PX5000G

AVC ULTRA

2/3-type Lens 2/3-type 3MOS 24 bit Audio
P2 card slot x 2 microP2 card slot x 2 Network

High-End Camera Recorder with Both High-Quality Shooting and Network Operation.

- 1080/60p^{*4} (50p) progressive image recording.
- F12 (59.94 Hz) or F13 (50 Hz) high sensitivity.
- AVC-Intra^{*1} or AVC-LongG high-quality images and dual codec recording of AVC-Proxy.
- Wired LAN/wireless LAN^{*5}, 4G/LTE^{*6} network function.



AJ-HPX3100G

2/3-type Lens 2/3-type 3CCD 24 bit Audio
P2 card slot x 2 microP2 card supported^{*7} Network

High-End Performance in a Compact, Lightweight Design. Enhances Mobility for ENG.

- A low profile body offers unobstructed views, light weight and low power consumption.
- Full-HD (1920 x 1080) resolution, high sensitivity and low noise.
- 10 bit/4:2:2 sampling images, high-quality 24 bit audio.
- High-resolution Proxy video recording (option).
- Wireless LAN^{*5} network function.



NEW

AJ-PX800G

AVC ULTRA

AJ-PX800GH: Bundled with AG-CVF15G Color LCD Viewfinder
AJ-PX800GF: Bundled with AG-CVF15G Color LCD Viewfinder and FUJINON 16x Auto Focus Lens

2/3-type Lens 2/3-type 3MOS 24 bit Audio
P2 card slot x 2 microP2 card supported^{*7} Network

The World's Lightest^{*8} 2/3 type Shoulder-Type HD Camera-Recorder with Three Image Sensors .

- F12 (59.94 Hz) or F13 (50 Hz) high sensitivity.
- 10 bit/4:2:2 sampling images, high-quality 24 bit audio.
- AVC-Intra or AVC-LongG high-quality images and dual codec recording of AVC-Proxy.
- Wired LAN/wireless LAN^{*5}, 4G/LTE^{*6} network function.



NEW

AG-HPX610^{*9}

AG-HPX610PJH/EJH: Bundled with AG-CVF15G Color LCD Viewfinder
AG-HPX610PJF/EJF: Bundled with AG-CVF15G Color LCD Viewfinder and FUJINON 16x Auto Focus Lens

2/3-type Lens 2/3-type 1MOS
P2 card slot x 2 microP2 card supported^{*7} Network^{*10}

High Cost-Performance System with Expandable Functions Meets Needs in a Wide Range of Uses.

- F12 (59.94 Hz) or F13 (50 Hz) high sensitivity.
- Proxy video recording, wired/wireless LAN^{*5} and playlist editing.^{*11}
- Optional production package: Variable frame rate shooting and 24PsF output.

^{*5}: For a wireless LAN connection, the AJ-WM30 Wireless Module is required. ^{*6}: For a 4G/LTE connection, you may need to update firmware. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). ^{*7}: Requires the optional AJ-P2AD1G Memory Card Adapter to use the microP2 card. ^{*8}: For a 2/3-type shoulder-type HD camera-recorder with three sensors (as of December 2014). ^{*9}: Package model only. ^{*10}: Requires the activation of bundled AG-SFU601G Upgrade Software Key. ^{*11}: Requires the optional AG-SFU604 Upgrade Software Key and AG-YDX600G Video Encoder Board.
The use of DCF Technologies is under license from Multi-Format, Inc.



AG-HPX370 series

(AG-HPX370/371/372/374)

2/3-type Lens 1/3-type 3MOS
P2 card slot x 2 microP2 card supported^{*5}

High-Quality Images in a Lightweight, Mobile, Compact Body and High Cost-Performance.

- Fujinon 1/3 type 17x zoom lens bundled.
- High-sensitivity and smear-less image, as with larger imagers.
- HD multi-format: 1080/24p/25p/30p/50i/60i, 720/24p/25p/30p/50p/60p.^{*1}
- Variable frame recording (in 720p).



AJ-PX270

AVC ULTRA

Integrated Lens System 1/3-type 3MOS 24 bit Audio
P2 card slot x 1 microP2 card slot x 2 Network

Featuring Superb Image Quality, Functionality and Operability Matching Shoulder-Type Cameras.

- 22x zoom lens with three manual operation rings.
- Switches and controls designed to match shoulder-type usability.
- AVC-Intra^{*2} or AVC-LongG high-quality images and dual codec recording of AVC-Proxy.
- Wired LAN/wireless LAN^{*3}/4G/LTE^{*4} network function.
- Variable Frame Rate Supporting 1080p.



AG-HPX255

Integrated Lens System 1/3-type 3MOS
P2 card slot x 2 microP2 card supported^{*5}

A High-Performance Handheld with Remote Terminal System Capability for Multi-Camera Shooting.

- 22x zoom lens with three manual operation rings.
- Full-HD (1920 x 1080) resolution, 10 bit/4:2:2 sampling images of AVC-Intra codec.
- Variable Frame Rate function enhances image expression.
- Camera remote capabilities with the optional AG-EC4G Extension Control Unit.



AG-HPX250

Integrated Lens System 1/3-type 3MOS
P2 card slot x 2 microP2 card supported^{*5}

High-Powered Lens, High Sensitivity and High Quality. A Handheld Camera for Broadcasting.

- 22x zoom lens with three manual operation rings.
- Full-HD (1920 x 1080) resolution, 10 bit/4:2:2 sampling images of AVC-Intra codec.
- Variable Frame Rate function enhances the image.

^{*}Pictures are the example of the configuration using options.

^{*1}: 60i, 60p, 24p, and 30p are actually recorded in 59.94i, 59.94p, 23.98p, and 29.97p, respectively. ^{*2}: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). ^{*3}: For a wireless LAN connection, the AJ-WM30 Wireless Module is required. ^{*4}: For a 4G/LTE connection, you may need to update firmware. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). ^{*5}: Requires the optional AJ-P2AD1G Memory Card Adapter to use the microP2 card.



AJ-HPD2500

P2 card slot x 6	microP2 card supported*6	24 bit Audio
Network	AVCHD	Analog I/O
e-SATA	USB 2.0	RS-422A
	RS-232C	Parallel
		AC

P2 Deck Enhances Broadcasting Workflow with Versatile Editing, Transmission and Networking Functions.

- AVC-Intra, DVCPRO HD and AVCHD*6 rec/play capability.
- Gigabit-Ethernet-compatible server/client function.
- Easy manual on-air transmission with one-clip playback and GUI hold.
- Playing*7 and copying at high speed to an external eSATA/USB hard disk drive.



AJ-PD500

AVC ULTRA

P2 card slot x 2	microP2 card slot x 2	24 bit Audio
Network	AVCHD	3G-SDI
USB 3.0/2.0	RS-422A	Parallel
		AC/DC

From Mastering to Network Solutions, a Half-Rack Size Recorder for a High-Quality, High-Speed Workflow.

- AVC-Intra*2, AVC-LongG, AVC-Proxy recording and AVCHD*8 playback capability.
- Gigabit-Ethernet-compatible client function.
- Playlist editing via LAN.*2
- Wide range of interfaces, including USB 3.0, 3G-SDI and HDMI.

HDMI



AJ-HPM200

P2 card slot x 6	microP2 card supported*6	24 bit Audio
Network	AVCHD	Analog I/O
e-SATA	USB 2.0	IEEE1394
		RS-422A
		AC/DC

P2 Mobile Suits Wide Use – In OB Vans, on Desktops and in Studios.

- AVC-Intra, DVCPRO HD and AVCHD*6 rec/play capability.
- Gigabit-Ethernet-compatible server/client function.
- Intuitive non-linear editing operation using VTR-like GUI.
- Playing*7 and copying at high-speed to an external eSATA/USB hard disk drive.



AG-HPD24

P2 card slot x 2	microP2 card supported*6	24 bit Audio
SDI	HDMI	USB 3.0/2.0
		RS-422A
		Battery / AC

A Compact P2 Deck with 24P and 3D Compatibility for Studio Production and On-Air Transmission.

- AVC-Intra, DVCPRO (HD/50/25) and DV rec/play capability.
- Supports cinema production, 24PsF compatible 1080/24P native recording and HD/SD multi-format.
- Two-unit sync operation records and plays superb 3D images.
- Wide range of interfaces, including USB 3.0, SDI and HDMI.

HDMI

*6: Requires the optional AJ-YCX250G AVCHD Codec Board. *7: Playback is based on a best-effort basis. Panasonic does not guarantee smooth playback without frame drops. *8: Requires the optional AJ-YCX500G AVCHD Codec Board. The use of DCF Technologies is under license from Multi-Format, Inc.

P2 Triggers a Workflow Revolution.

AVC-ULTRA Codec Family

AVC-ULTRA is an H.264-based video compression codec featuring high image quality and excellent efficiency.

By selecting the image quality and bit rate, it is possible to respond to various needs of broadcasting and image production, from 4K production to streaming distribution.

- **AVC-Intra:** Intra-frame compression attains high, production-level image quality. For HD use, AVC-Intra200, with image quality approaching uncompressed levels and high, 24 bit audio, has been added to the popular AVC-Intra100/50 codecs. The new codec provides high-quality images for mastering and archiving use. The newly developed VariCam 35 is equipped with the AVC-Intra4K/2K codec for 4K/2K image use.

- **AVC-LongG:** Inter-frame compression achieves high-quality HD recording at a low bit rate. The AVC-LongG25 codec operates with high, 10 bit/4:2:2 image quality and a bit rate of approximately 25 Mbps (when using 1080/59.94i).

- **AVC-Proxy:** A dual codec recording function simultaneously records, in addition to the main data, proxy images (Quick Time/H.264)*1 with a low bit rate, high resolution, and high-quality sound. This enables previewing on a wireless device,*2 and data transfer and streaming distribution over the internet. It also includes metadata for efficient offline editing.



Evolving P2 Card Series

P2 originally led the broadcast industry with its use of solid-state memory cards for recording media. Highly resistant to temperature fluctuations, dust, impact and vibration, the P2 card took advantage of its solid-state memory capabilities to provide instant start-up and media access. P2 brought high reliability and mobility to data gathering and acquisition under virtually all conditions. Today, the P2 card continues to evolve.

- **microP2 card:** This new broadcast-use memory card was reduced to the size of the SD card, and its cost was significantly lowered. It also inherits the highly reliable design of the P2 card.

- **expressP2 card**:** Based on the PC card Type III form factor, the expressP2 card offers the same level of durability as the P2 card and a larger capacity of 256 GB. It is well suited to recording master grade 4K images and high-frame-rate VFR images (HD: maximum 240 fps) for the new VariCam Series.

- **Higher reliability:** The microP2 and expressP2 cards offer the same level of reliability as the RAID system, i.e., the capability to restore data with sector, page, and block errors that cannot be corrected by ordinary flash memory error correction. It also features the new CPS (Content Protection System) security function. Data recorded on the card can be locked with a password to protect against unauthorized access and prevent data leaks.

AVC ULTRA

4K*3	AVC INTRA		
	AVC-Intra Class4K4:4:4	4:4:4	12 bit
	AVC-Intra Class4K4:2:2	4:2:2	10 bit
2K	AVC INTRA		
	AVC-Intra Class2K4:4:4	4:4:4	12 bit
	AVC-Intra Class2K4:2:2	4:2:2	10 bit
HD	AVC INTRA		
	AVC-Intra Class4:4:4	4:4:4	12 bit
	AVC-Intra Class200	4:2:2	10 bit
	AVC-Intra Class100		
	AVC-Intra Class50	4:2:0	10 bit
	AVC LongG		
	AVC-LongG G50	4:2:2	10 bit
	AVC-LongG G25		
	AVC-LongG G12	4:2:0	8 bit
Proxy	AVC Proxy		
	AVC-Proxy G6	4:2:0	8 bit
	AVC-Proxy G3.5		
	AVC-Proxy G1.5		
	AVC-Proxy G0.8		



*1: Proxy data cannot be recorded when using the Loop Rec or Interval Rec function. Proxy data is low bit rate video and audio data with time code, metadata, and other management data in a file format.

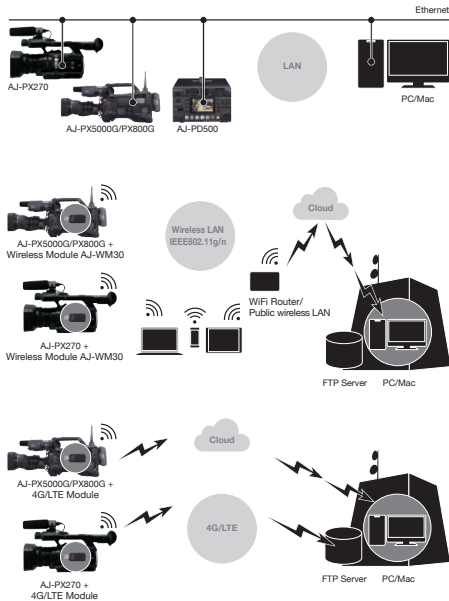
*2: Applicable models only. The optional AJ-WM30 Wireless Module and the Upgrade Software Key are required for wireless connection.

*3: 4096 x 2160 and 3840 x 2160

*4: expressP2 card can be used with VariCam 35 and VariCam HS.

Network Connectivity

P2 content uses the MXF (OP-ATOM, OP1b) format, which has spearheaded the use of file formats in broadcast systems. Proxy images in Quick Time (H.264) format and network functions support new, instantaneous broadcast workflows based on mobile networks.



- **Wired/wireless LAN:** Models equipped with a LAN (Ethernet) terminal can be connected to a network with a wired LAN connection. Models that support wireless connection*5 are capable of wireless LAN connection (IEEE 802.11g/n standard). Proxy previews, metadata input, remote operation, FTP transfers, playlist editing and other functions can be used from computers (PC/Mac), tablet devices and smartphones*6 connected to the network.

- **4G/LTE network connectivity:** Functions equivalent to those made possible by wired LAN connection are achieved by the camera recorder alone. FTP transfers can be directly made from the camera recorder to the network server. As soon as data is gathered, it can be edited at the studio desk and sent as a news flash.

- **Video streaming:** Proxy images can be streamed via wired/wireless LAN or 4G/LTE networks. Live streaming distribution is also possible.

*5: For a wireless LAN connection, the AJ-WM30 Wireless Module is required.

*6: For the latest information, see "Service and Support" section on the Panasonic website (<http://pro-av.panasonic.net/>).

High Image Quality, High Sensitivity, and High Operability — Features of P2 Cam and P2 Handheld Camera Section.

Chromatic Aberration Compensation (CAC)

When using a CAC compatible lens, the small amount of circumjacent chromatic aberration (circumjacent blur) that is not corrected by the lens is compensated by this process.

Simulation Showing the CAC Effect

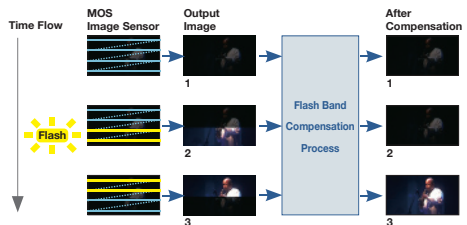


Scan Reverse Function

Displays/records images in vertically or horizontally inverted orientation, for use with film lenses.

Flash Band Compensation (FBC)

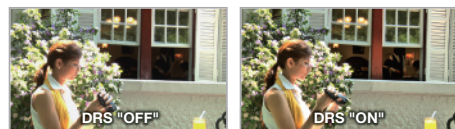
High-precision flash band detection and compensation eliminate the flash band effect of MOS imagers.



Dynamic Range Stretch (DRS)

When dark, bright, and intermediate shades are all contained in the same scene, such as when panning from indoors to outdoors, the DRS function automatically suppresses blocked shadows and blown highlights.

Simulation Showing the DRS Function



*Blown highlights and Blocked shadows are suppressed simultaneously.

Gamma Function Further Approaches Film Tone

The new VariCam Series is equipped with a "V-Log" gamma function, featuring a dynamic range that approaches film. This technology and know-how are also applied to other P2 camera recorders, allowing selection of various-model gamma curves, such as Cinema-like Gamma, to easily achieve the most suitable image tone.

Simulation Showing the Gamma Function



HD NORM mode

CINE-LIKE D mode

Digital Super Gain

Digital super gain (frame cumulative mode) records with a high S/N ratio*1 and less of the noise that commonly comes with higher gain. Gain and Digital Super Gain can be flexibly combined to achieve highly sensitive recording to suit various shooting conditions.

*1: Due to the use of image accumulation, the number of recorded frames per second decreases. This results in a frame-by-frame playback effect.

Variable Frame Rate (VFR)

This creates a wide range of film-camera-like images, such as overcranking for slow-motion and undercranking for quick-motion effects.



Overcranking
(higher-speed shooting)



Undercranking
(lower-speed shooting)

Focus Assist Functions

A variety of focus assist functions support quick and accurate focusing in Manual Focus mode.

- **Expand:** Enlarging the center portion increases visibility.
- **Focus Bar:** This provides a graphical meter display of the focus level.
- **Focus-In-Red Display:** This function emphasizes the image areas in focus by marking the edges in red.
- **Graph:** Shows the frequency distribution of the incoming signal.
- **One-Push AF:** Pressing the PUSH AUTO button enables focusing.



Expand (AJ-PX270)



Focus-in-Red (AJ-PX270)



Histogram (AJ-HPX3100G)

User Buttons

Frequently used functions can be allocated to these buttons for one-touch operation. The number of User buttons and the functions that can be allocated to them vary depending on the model.

Scene File, Scene File Dial

By using preset image quality settings or saving and selecting settings as desired, a film-camera-like tone can quickly be set to suit each shooting situation. It also makes it easy to coordinate the images of several cameras. Some models are equipped with a special Scene File Dial for this purpose.

Waveform and Vectorscope Display

Simplified waveform and vectorscope display on the LCD monitor and the viewfinder.



Waveform

Vectorscope

Various Recording Functions of P2 Recorders

High-Quality 24 bit 4 Channel Audio Recording

AVC-Intra and AVC-LongG modes support 24 bit/48 kHz digital audio recording*2 (16 bit for DVCPRO HD, DVCPRO and DV). All modes have four audio channels.

*2: The audio signal can be played back by using 24 bit digital audio equipment. For details, refer to "Note Regarding 24 bit Audio" on the back page.

Recording with two Card Slots

Models that have two P2 card slots or two microP2 card slots are capable of consecutive recording using two of the same type of cards, card select (recording slot switching), and hot swapping (exchanging cards while recording).

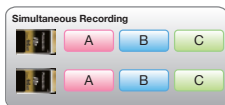


Card Slots (AJ-PX5000G)

Simul Recording

Some models are also equipped with a Simul Recording mode that records the same data onto two P2 cards*3 for a high level of safety.

*3: Cannot be recorded to microP2 card and P2 card simultaneously.



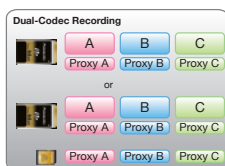
Background Recording*4

Slot 1 records with the normal Rec Start/Stop control, while slot 2 continues recording even when recording is stopped. This prevents loss of important scenes while recording is stopped.

*4: Can be recorded only to microP2 card slot.

Dual-Codex Recording

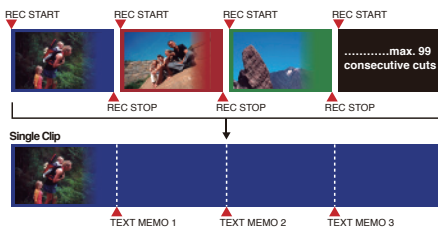
While recording actual data with an AVC-Intra or AVC-LongG codec, you can simultaneously record with the low bit rate AVC-Proxy codec.



One-Clip Rec Mode

Records up to 99 consecutive cuts as a single clip, which greatly improves the nonlinear editing work that follows. A text memo is automatically attached to the Rec Start point for easy searching for the beginning of the cut.

Pre Rec



This stores several seconds (varies depending on the model and recording mode) of video and audio data in memory while in standby mode and lets you recover and use the data from the point before you started recording.

Loop Rec

Repeatedly re-records while maintaining a recording of the most recent, pre-determined period.

Interval Rec

Automatically records intermittently based on a set interval and recording time.

One-shot Rec

A frame-shot recording function useful for producing animations.

Time Stamp

The date and time can be stamped onto recorded images. Commonly used for evidential images.

Rec Check

This lets you run a quick playback check of the clip-end you have just recorded.

Last Clip Delete

Deletes the last recorded clip with a single touch.

Metadata Recording

Shooter's name, Reporter's name, Program name, GPS (built-in or optional) location information, etc., can be recorded as clip metadata. This metadata makes searching or classification easier.

Text Memo (Bookmark) for Simple Editing

When recording or previewing a clip, press the Text Memo button at any of up to 100 locations and a text memo label, similar to a bookmark, is registered. Using only the P2 cam, you can create a new clip with data copied between text memo labels. A shot mark, which allows convenient OK and NG marking, can also be added to each clip during or after recording.

*Text memos and shot marks cannot be added when the camera is in Loop Rec, Interval Rec, or One-shot Rec mode.

Camera Remote System

A remote terminal is provided for the optional AG-EC4G Extension Control Unit or AJ-RC10G Remote Control Unit. This enables camera settings to be made and recording to be controlled while watching the monitor at the remote end.

*Only functions that are supported by the camera recorder can be controlled.



Camera Studio System

The shoulder-type P2 cam supports the Camera Studio System. The optional camera extension system (AG-CA300G Camera Adapter and AG-BS300 Base Station) support cost-efficient studio integration.

*Only functions that are supported by the camera recorder can be controlled.



Wired LAN remote

A wired LAN connection allows the camera to be remotely controlled. Remote operation, including fine menu settings, is possible by using the optional AK-HRP200G Remote Operation Panel for studio cameras.

P2 Camera Recorder Comparison Table

	AJ-PX5000G	AJ-HPX3100G	AJ-PX800G	AG-HPX610
Lens System (Angle of view, 35 mm equiv.)	2/3 type B mount interchangeable lens (option)	2/3 type B mount interchangeable lens (option)	2/3 type B mount interchangeable lens (option)	2/3 type B mount interchangeable lens (option)
Digital Zoom	2x, 3x, 4x	2x, 3x, 4x	2x, 4x	2x, 4x
Optical Image Stabilizer	—	—	—	—
Manual Rings	—	—	—	—
Built-in Optical Filters	CC: 3200 K/4300 K/ 5600 K/6300 K ND: CLEAR, 1/4, 1/16, 1/64	CC: 3200 K/4300 K/ 5600 K/6300 K ND: CLEAR, 1/4, 1/16, 1/64	ND: CLEAR, 1/4, 1/16, 1/64	ND: CLEAR, 1/4, 1/16, 1/64
Image Pick-up Device	2/3 type 2.2 MP, MOS x 3	2/3 type 2.2 MP, IT-CCD x 3	2/3 type 2.2 MP, MOS x 3	2/3 type MOS
Scan Reverse	✓	✓	✓	✓
CAC	✓	✓	✓	✓
FBC	✓	—	✓	✓
DRS	✓	✓	✓	✓
Gamma Modes	7	7 (Included FILM-REC)	7	7
60 Hz/50 Hz Switchable	✓	✓	✓	✓
SD (Std-Def) Recording	DVCPRO 50/25/DV	DVCPRO 50/25/DV	DVCPRO 50/25/DV	DVCPRO 50/25/DV
24 bit LPCM Recording	✓	✓	✓	—
VFR	—	—	—	Option 1080:1-30 fps, 720:1-60 fps
microP2 card Compatibility	Standard	Upgradable	Upgradable	Upgradable
P2 Card Slot	P2 x 2, microP2 x 2	P2 x 2	P2 x 2	P2 x 2
SD Memory Card Slot	SD x 1	SD x 1	SD x 1	SD x 1
Relay Recording	✓	✓	✓	✓
Simultaneous Recording	✓	—	✓	—
One-Clip Rec	✓	✓	✓	✓
Interval Rec/ One-Shot Rec/Loop-Rec	✓	✓	✓	✓
Pre-Rec (HD mode)	8 sec*	8 sec	3 sec	3 sec
Shot Mark/Text Memo	✓	✓	✓	✓
Meta-data Recording	✓	✓	✓	✓
Time Stamp Recording	—	—	—	—
Proxy Recording	✓	Option	✓	Option
TC Generator/Reader	✓	✓	✓	✓
Scene File (Dial)	4	4	6	6
User Buttons	5	5	3	3
Built-in Monitor	3.45 type LCD (921K dots)	3.2 type LCD (921K dots)	—	—
EVF	Option	Option	Option	Option
Waveform Display	✓	—	✓	—
Vectorscope Display	✓	—	✓	✓
3D Assist	—	—	—	—
Focus Assist	Focus-In-Red, Expand, Focus Bar	Frequency Distribution Graph	Focus-In-Red, Expand, Focus Bar, Push Auto	Expand, Focus Bar Push Auto (Bundled lens)
GENLOCK IN	Switchable to SDI In/ Video In/Ret In	Switchable to SDI In/ Video In/Ret In	✓	✓
TC IN/OUT	✓	✓	✓	✓
Built-in Microphone	—	—	—	—
XLR AUDIO IN	3 pin x 2, 5 pin x 1	3 pin x 2, 5 pin x 1	3 pin x 2, 3 pin x 1	3 pin x 2, 3 pin x 1
Slot-In Wireless Receiver	✓	✓	✓	✓
SDI IN	Switchable to SDI In/ Video In/Ret In	Switchable for Video In/ Ret In/GENLOCK IN	Option (Switchable to SDI OUT)	Option (Switchable to SDI OUT)
SDI OUT	2	1+1 (Mon out)	1+1 (Mon out)	1+1 (Mon out)
IEEE1394 (DVCPRO)	—	—	—	—
HDMI OUT	✓	—	✓	✓
Analog Video Output	✓	✓ (Switchable to Mon Out)	✓ (Switchable to Mon Out)	✓ (Switchable to Mon Out)
Down Converter (Aspect Conversion Mode)	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze
ECU/ Wired Remote Control Terminals	10P for ECU	10P for ECU	10P for ECU	10P for ECU
Wireless Remote Control	—	—	—	—
LAN Port	✓	—	✓	✓
USB 3.0	1 (Host)	—	—	—
USB 2.0	2 (Device/Sub Host)	2 (Host/Device)	3 (Host/Device/Sub Host)	3 (Host/Device/Sub Host)
Wireless LAN	✓	✓ (Option)	✓	✓ (Option)
4G/LTE Network	✓	—	✓	—
Video Streaming	Future development	—	✓	✓
Background Recording	—	—	—	—

* About 8 seconds at 1080/59.94p mode. About 3 seconds at 50p mode and AVC-Intra100 codec.

AG-HPX370 series	AJ-PX270	AG-HPX255	AG-HPX250	AG-3DP1G
1/3 type B mount interchangeable lens (option)	Motorized 22x zoom (28 mm – 616 mm)	Motorized 22x zoom (28 mm – 616 mm)	Motorized 22x zoom (28 mm – 616 mm)	Motorized 17x Twin zoom (35 mm – 602 mm)
–	2x, 5x, 10x	2x, 5x, 10x	2x, 5x, 10x	✓
–	✓	✓	✓	–
–	3 rings [zoom, focus, iris]	3 rings [zoom, focus, iris]	3 rings [zoom, focus, iris]	3 rings [zoom, focus, iris]
ND: CLEAR, 1/4, 1/16, 1/64	ND: OFF, 1/4, 1/16, 1/64	ND: OFF, 1/4, 1/16, 1/64	ND: OFF, 1/4, 1/16, 1/64	ND: CLEAR, 1/4, 1/16, 1/64
1/3 type 2.2 MP, MOS x 3	1/3 type 2.2 MP, MOS x 3	1/3 type 2.2 MP, MOS x 3	1/3 type 2.2 MP, MOS x 3	1/3 type 2.2 MP, MOS x 3 x 2
✓	✓	–	–	–
✓	–	–	–	–
✓	✓	✓	✓	–
✓	✓	✓	✓	✓
7	7	7	7	6
✓	✓	✓	✓	✓
DVCPRO 50/25/DV	DVCPRO 50/25/DV	DVCPRO 50/25/DV	DVCPRO 50/25/DV	–
–	✓	–	–	–
720:12-60 fps	1080/59.94p: 1-60 fps 1080/50p: 1-50 fps	1080/59.94p: 1-30 fps 1080/50p: 1-25 fps 720/59.94p: 1-60 fps 720/50p: 1-50 fps	1080/59.94p: 1-30 fps 1080/50p: 1-25 fps 720/59.94p: 1-60 fps 720/50p: 1-50 fps	720/59.94p: 12-60 fps 720/50p: 12-50 fps
Upgradable P2 x 2 SD x 1	Standard P2 x 1, microP2 x 2 SD x 1	Upgradable P2 x 2 SD x 1	Upgradable P2 x 2 SD x 1	– P2 x 2 SD x 1
✓	✓	✓	✓	–
–	✓	–	–	3D (L/R)/2D LL
✓	✓	✓	✓	–
✓	✓	✓	✓	✓
3 sec	HD: 3 sec, SD: 7 sec	3 sec	3 sec	–
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
–	✓	✓	✓	–
Option	✓	Option (Focus FS250)	Option (Focus FS250)	–
✓	✓	✓	✓	✓
6-potion dial	6	6-potion dial	6-potion dial	6
3	8	5	5	3
3.2 type LCD (921K dots)	3.5 type LCD (1,560K dots)	3.45 type LCD (921K dots)	3.45 type LCD (921K dots)	3.2 type LCD (921K dots)
3.2 type LCOS (1,226k dot-equiv.)	0.5 type OLED (2,360k dot-equiv.)	0.45 type LCOS (1,226k dot-equiv.)	0.45 type LCOS (1,226k dot-equiv.)	Option
✓	✓	✓	✓	✓
–	–	–	–	✓
Center Zoom, Focus Bar	Turbo-Speed One-Push AF, Focus-In-Red, Expand, Focus Bar	Focus-In-Red, Expand, Push Auto, Focus Bar	Focus-In-Red, Expand, Push Auto, Focus Bar	Focus Bar
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
–	Stereo	Stereo	Stereo	–
3 pin x 2, 3 pin x 1	3 pin x 2	3 pin x 2	3 pin x 2	3 pin x 2, 5 pin x 1
✓	–	–	–	✓
–	–	–	–	Ret In
2	1	1	1	2 (L/R)
✓	–	✓	✓	–
–	✓	✓	✓	3D
✓	✓	✓	✓	–
Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	–
10P for ECU	Zoom, Rec-S/S, Focus, Iris	10P for ECU Zoom, Rec-S/S, Focus, Iris	Zoom, Rec-S/S, Focus, Iris	10P for ECU, Zoom, Rec-S/S, Focus, Iris, Conv.
–	–	✓	✓	–
–	✓	–	–	–
–	1 (Host)	–	–	–
2 (Host/Device)	2 (Device/Sub Host)	2 (Host/Device)	2 (Host/Device)	–
–	✓	–	–	–
–	✓	–	–	–
–	Future development	–	–	–
–	✓	–	–	–

P2

AVCCAM

MONITOR

Memory Card/Memory Card Adapter



AJ-P2E064FG
AJ-P2E032FG
 P2 card



AJ-P2M032AG/AJ-P2M064AG

AJ-P2AD1G

AJ-P2M064AG
AJ-P2M032AG
AJ-P2AD1G
 microP2 card/Memory Card Adapter

Memory Card Drive



AJ-PCD35

P2 card slot x 5 microP2 card supported* PCI Express

Five P2 card Slots and High Speed PCI Express Interface

- Power Source: DC 16 V, 0.6 A with AC adaptor, DC 12 V 0.8 A when PC built-in • AC Adaptor: AC 100 V to 240 V (1.20 A), 50 Hz/60 Hz • Weight: approx. 1.2 kg (2.6 lb) • Dimensions (W x H x D): 148.4 mm x 42.5 mm x 199.5 mm, excluding protruding parts (5-7/8 inches x 1-11/16 inches x 7-7/8 inches)



AU-XPDI

expressP2/P2 card slot x 1 microP2 card supported*

USB 3.0/2.0

The expressP2 card drive for VariCam

- Power Source: DC 5 V 1.8 A • Weight: approx. 280 g (0.62 lb) main unit only • AC adapter: AC 100 V, 50 Hz/60 Hz • Dimensions (W x H x D): 97 mm x 33 mm x 155 mm, excluding protruding parts (3-13/16 inches x 1-5/16 inch x 6-1/8 inches)

*Connection of the AU-XPDI requires two USB cables. And a power supply is connected with USB 3.0 port of PC or an AC adaptor.



AJ-PCD2G

P2 card slot x 1 microP2 card supported* USB 2.0

Compact, Lightweight, Low Cost USB Bus Powered 1-Slot P2 Drive Ideal for Mobile Applications

- Power Source: DC 5 V, 0.5 A • Weight: approx. 200 g (0.44 lb) main unit only • Dimensions (W x H x D): 97 mm x 25.5 mm x 113 mm, excluding protruding parts (3-7/8 inches x 1-1/16 inches x 4-1/2 inches)



AJ-PCD30

P2 card slot x 3 microP2 card supported* USB 3.0/2.0

High Speed USB 3.0 Interface Boosts Workflows

- Power Source: DC 16 V, 0.6 A with AC adaptor, DC 12 V 0.8 A when PC built-in • AC Adaptor: AC 100 V to 240 V (1.20 A), 50 Hz/60 Hz • Weight: approx. 1.2 kg (2.6 lb) • Dimensions (W x H x D): 148.4 mm x 42.5 mm x 199.5 mm, excluding protruding parts (5-7/8 inches x 1-11/16 inches x 7-7/8 inches)



AJ-MPD1G

microP2 card slot x 2 USB 3.0/2.0

Compact, Lightweight, Low Cost USB Bus Powered microP2 Card Drive with USB 3.0 Support and 2 Card Slots.

- Power Source: DC 5 V (USB power supply) • Weight: approx. 120 g or less (0.26 lb) main unit only • Dimensions (W x H x D): 97 mm x 25.4 mm x 112 mm, excluding protruding parts (3-13/16 inches x 1 inch x 4-7/16 inches)

*Requires the optional AJ-P2AD1G Memory Card Adapter to use the microP2 card.

Other P2HD Equipment/Software



AG-MSU10 Mobile Storage Unit "P2 MSU"

P2 card slot x 1

e-SATA

USB 2.0

Fast Copying from P2 Cards to a Solid-State Drive*1
A Mobile Tool for Speeding Up P2HD Workflow

- Power Source: DC 7.2 V (with battery), DC 7.9 V (with AC adaptor)
- Current Consumption: approx. 1.1 A • Weight: AG-MSU10: approx. 770 g (1.69 lb) without SSD and Battery, AG-MBX10G: approx. 135 g (0.3 lb) without SSD • Dimensions (W x H x D): 99 mm x 58 mm x 212 mm, excluding protrusions (3-15/16 inches x 2-5/16 inches x 8-3/8 inches)

*1: The removable SSD is not included with the product. Use a commercially available removable SSD that is recommended by Panasonic. In addition to the removable SSD interface box that comes with the AG-MSU10 as a standard accessory, an additional AG-MBX10 can be purchased as an option. Do not use Hard Disk Drive instead of an SSD. For compatible SSD information, please refer to the following website (http://pro-av.panasonic.net/en/sales_o/p2/ag-msu10/).



P2 Viewer Plus*2

Viewing Software

(Download Free/Optional Functions require Licensing Fees)

Supports P2HD. This Windows/Mac utility makes it easy to view and copy P2 files.

AJ-SK001G

Ingesting Function Software Key*3

(Optional, Subject to Licensing Fee)

The ingesting function copies all clips on P2 cards to a storage medium, such as an HDD. During ingesting, the clips are verified for secure copying, with log files created.

*2: For P2 Viewer Plus download and operating requirement information, see "P2 Viewer Plus" on the Panasonic web site http://pro-av.panasonic.net/en/sales_o/p2/p2viewerplus/

*3: For information on purchasing software keys, see "Service and Support" on the Panasonic web site <http://pro-av.panasonic.net/>

Professional Archive System



Video Ingester

- Linking with Archiving Software*1 enables tape-recorded footage (HD/SD) to be input for MXF-format file conversion, and saving and management on LTO tape or Blu-ray Discs.
- Auto Ingest and Error Rate Monitoring function eliminates the need for physical monitoring while loading and also increases reliability.
- Metadata can be added during ingestion.

*1: Video Ingest Software can be installed on the same PC as the Archiving Software, but ingestion and archiving cannot be done simultaneously.



Archive

- Proxy*2 video can be generated and metadata can be edited while archiving.
- Up to 10 copy tasks can be registered for batch execution.
- Direct playback*3 and segmented retrieve*4 are possible from archive data stored on LTO tape.

*2: The use of DCF Technologies is under license from Multi-Format, Inc.

*3: Tape cueing requires some time when directly playing back LTO tapes.

*4: Partial retrieve is possible only with P2 and XDCAM codecs. Partial retrieve is not possible for content stored on Blu-ray Discs.

■ Avid NLE P2 Plug-In Software*

AJ-PS001G
Software Key
for AVC-Proxy
re-link.



AJ-PS002G
Software Key
for AVC-Intra50/100
P2 file export.



AJ-PS003G
Software Key
for AVC-LongG
P2 file export.



AJ-PS004G
Software Key
for AVC-LongG file
import to edit.



* Please refer to the "service and support" on the Panasonic website (<http://pro-av.panasonic.net/>).

P2 Optional Accessories

P2 cam, P2 handheld options		AJ- PX5000G	AJ- HPX3100G	AJ- PX800G	AG- HPX610	AG- HPX370 series	AJ- PX270	AG- HPX250	AG- HPX255	AG- 3DP1G
Camera Adapter	AG-CA300G	✓	✓	✓	✓	✓				✓
Base Station	AG-BS300	✓	✓	✓	✓	✓				✓
Extension Control Unit	AG-EC4G	✓	✓	✓	✓	✓			✓	✓
VF Interface Box	AG-YA500G	✓	✓	✓	✓					✓
RCU (Remote Control Unit)	AJ-RC10G	✓	✓	✓	✓	✓				✓
Remote Control Cable (for AJ-RC10G)	AJ-C10050G	✓	✓	✓	✓	✓				✓
Remote Operation Panel (ROP)	AK-HRP200G	✓		✓			✓			
Color HD EVF	AG-CVF10G	✓	✓	✓	✓					✓
Color HD EVF	AG-CVF15G	✓	✓	✓	✓					✓
50.8 mm (2 inches) HD EVF	AJ-HVF21G AJ-HVF21KG	✓	✓	✓	✓					✓
HD/SD LCD monitor	BT-LH910G	✓*1	✓*1	✓*1	✓*1	✓*1				
Stereo Microphone	AJ-MC900G	✓	✓							✓
Microphone Kit (monaural)	AJ-MC700P			✓	✓	✓				
XLR Microphone (monaural)	AG-MC200G			✓	✓	✓	✓	✓	✓	
GPS Unit	AJ-GPS910G		✓							✓
Tripod Adaptor	SHAN-TM700	✓	✓	✓	✓	✓				✓
Video Encoder Card	AJ-YAX800G					✓				
Video Encoder Board	AG-YDX600G				✓					
Video Encoder Board*2	AJ-YDX30		✓							
HD/SD SDI Input Board	AG-YA600G			✓	✓					
Wireless Module*2	AJ-WM30	✓	✓*3	✓	✓*4		✓			
Wireless LAN Upgrade Software Key	AJ-SFU3100G		✓							
AVC-Intra200 Codec Recording Upgrade Software Key	AJ-AKR200G	✓*5					✓*5			
Wired/Wireless LAN Upgrade Software Key	AG-SFU601G				✓*6					
Production Package Upgrade Software Key	AG-SFU602G				✓					
LiveU Uplink Solution Upgrade Software Key	AG-SFU603G				✓					
Proxy Playlist Editing Upgrade Software Key	AG-SFU604G				✓*7					
Battery Pack (5,800 mAh)	VW-VBD58						✓			
Battery Pack (5,400 mAh)	CGA-D54/D54s						✓	✓	✓	
Battery Charger	AG-B23						✓	✓	✓	
Soft Carrying Case	AJ-SC900	✓	✓	✓	✓	✓				
Rain Cover	SHAN-RC700	✓	✓	✓	✓	✓				
P2 Card (F series)*2	AJ-P2E064FG AJ-P2E032FG	✓	✓	✓	✓	✓	✓	✓	✓	✓
microP2 Card	AJ-P2M032AG AJ-P2M064AG	✓	✓*8	✓	✓*8	✓*8	✓	✓*8	✓*8	
SDXC Memory Card		✓		✓			✓			
SDHC/SD Memory Card		✓	✓	✓	✓	✓	✓	✓	✓	✓
Memory Card Adapter *8	AJ-P2AD1G	✓	✓	✓	✓	✓		✓	✓	✓
Anton/Bauer Battery		✓*9	✓*9	✓*9	✓*9	✓*9				✓*9
Anton/Bauer UltraLight	33012	✓	✓							✓
Anton/Bauer UltraLight	33013	✓	✓	✓	✓	✓				✓
Portable H.264 Proxy Recorder	FOCUS FS-P250							✓*10	✓*10	

✓: It is possible to use it. *1: A mounting bracket (purchased separately) is required to mount on a camera recorder. *2: To use the AVC-Intra Codec Board, Video Encoder Board, Wireless Module, and 16 GB/32 GB/64 GB P2 card, the software for the camera recorder may need to be updated depending on the existing software version. For details, see the Panasonic website (<http://pro-av.panasonic.net/>). *3: The optional AJ-SFU3100G Upgrade Software Key is required to use the AJ-WM30 Wireless Module. *4: The optional AG-SFU601G Upgrade Software Key is required to use the AJ-WM30 Wireless Module. *5: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). *6: It is a bundled item. *7: In addition to the AG-SFU604G Upgrade Software Key, the AG-YDX600G Video Encoder Board and AG-SFU601G Upgrade Software Key are required for operation. For a wireless LAN connection, the AJ-WM30 Wireless Module is also required. *8: A firmware upgrade is required for the P2 device. *9: The applicable battery pack varies depending on the model. *10: You may need to update AG-HPX255/HPX250 firmware. Please refer to the "service and support" on the Panasonic website (<http://pro-av.panasonic.net/>).



AG-CA300G
Camera Adapter



AG-BS300
Base Station



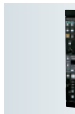
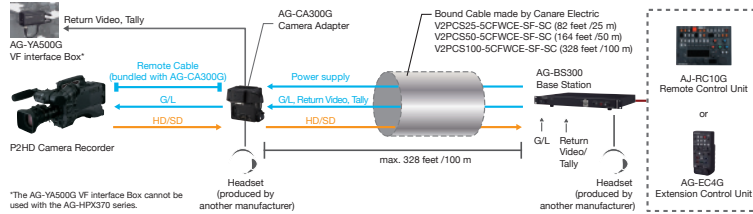
AG-EC4G
Extension Control Unit



AG-YA500G
VF Interface Box



AJ-RC10G*1
RCU
(Remote Control Unit)



AK-HRP200G
Remote Operation
Panel (ROP)



AG-CVF10G
87.6 mm (3.45 inches)
Color HD EVF



AG-CVF15G
87.6 mm (3.45 inches)
Color HD EVF



AJ-HVF21G
50.8 mm (2 inches)
HD EVF



AJ-HVF21KG
50.8 mm (2 inches)
HD EVF



BT-LH910G
228.6 mm (9 inches)
HD/SD LCD monitor



AJ-MC900G
Stereo Microphone



AJ-MC700P
Microphone Kit



AG-MC200G
XLR Microphone



AJ-GPS910G
GPS Unit



SHAN-TM700
Tripod Adaptor



AJ-YAX800G*2
Video Encoder Card



AG-YDX600G
Video Encoder Board



AJ-YDX30G
Video Encoder Board



AG-YA600G
HD/SD SDI Input Board



AJ-WM30
Wireless Module



VW-VBD58
Battery Pack (5,800 mAh)



**CGA-D54/
CGA-D54s**
Battery Pack (5,400 mAh)



AJ-SFU3100G
Wireless LAN



AG-SFU602G
Production Package
Upgrade Software Key



AG-B23
Battery Charger



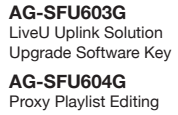
AJ-SC900*3
Soft Carrying Case



SHAN-RC700*3
Rain Cover



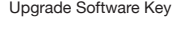
AJ-AKR200G
COMING SOON
AVC-Intra200 Codec
Recording
Upgrade Software Key



AG-SFU603G
LiveU Uplink Solution
Upgrade Software Key



AG-SFU601G
Wired/Wireless LAN
Upgrade Software Key



AG-SFU604G
Proxy Playlist Editing
Upgrade Software Key

*1: Not available in some areas. Only functions that are supported by the camera can be controlled by the AJ-RC10G. *2: Camera Recorder software upgrade is required. *3: Not available in some areas. The use of DCF Technologies is under license from Multi-Format, Inc.

P2 deck, P2 mobile, P2 portable deck, P2 MSU options		AJ-HPD2500	AJ-HPM200	AJ-PD500	AG-HPD24	AG-MSU10
Rack Mount Adaptor	AJ-MA75P	✓*1				
AVC-Intra200 Codec Recording Upgrade Software Key	AJ-AKR200G			✓*4		
AVCHD Codec Board	AJ-YCX250G	✓	✓			
AVCHD Codec Board	AJ-YCX500G			✓		
Battery Pack (5,400 mAh)	CGA-D54 CGA-D54s				✓	✓
Removable Interface Box	AG-MBX10G					✓
P2 Card (F series)*2	AJ-P2E064FG AJ-P2E032FG	✓	✓	✓	✓	✓
SDXC Memory Card				✓		
SDHC/SD Memory Card		✓	✓	✓	✓	
microP2 Card *3	AJ-P2M032AG AJ-P2M064AG	✓	✓	✓	✓	
Memory Card Adapter *3	AJ-P2AD1G	✓	✓		✓	

✓: It is possible to use it. *1: A slide rail (purchased separately) is required for rack mounting. *2: To use the AVC-Intra Codec Board and 16 GB/32 GB/64 GB P2 card, the software for the camera recorder may need to be updated depending on the existing software version. For details, see the Panasonic website (<http://pro-av.panasonic.net/>). *3: A firmware upgrade is required for the P2 device. *4: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>).



AJ-MA75P
Rack Mount Adaptor



AJ-AKR200G
COMING SOON
AVC-Intra200 Codec
Recording Upgrade
Software Key



AJ-YCX250G
AVCHD Codec Board



AJ-YCX500G
AVCHD Codec Board



**CGA-D54/
CGA-D54s**
Battery Pack (5,400 mAh)



AG-MBX10G
Removable Interface Box

Other Manufacturers' Products

2/3-type CAC Applicable Lenses

The use of Canon, Fujinon and Angenieux lenses with CAC (Chromatic Aberration Compensation) is recommended.

* For the latest information on CAC applicable lenses, see "Support & Download" on the Panasonic website (<http://pro-av.panasonic.net/>). The installation of CAC data might be required depending on the lens. Some Angenieux lenses do not support CAC operation. Be sure to specify CAC applicability when purchasing lenses.

Bound Cable for Camera Studio System
(between AG-BS300 and AG-CA300G)

[Canare]

V2PCS25-5CFWCE-SF-SC (82 feet/25 meters)
V2PCS50-5CFWCE-SF-SC (164 feet/50 meters)
V2PCS100-5CFWCE-SF-SC (328 feet/100 meters)

Power Cable for Camera Studio System
(between AG-BS300 and AG-CA300G)

[Canare]

DC50V10-CE01PS-SC (164 feet/50 meters)
DC100V10-CE01PS-SC (328 feet/100 meters)

Canare Electric CO., Ltd.
<http://www.canare.co.jp/oversea/mainmenu.html>

Anton/Bauer Dionic Battery
Anton/Bauer Hytron Battery

33012/33013
Anton/Bauer UltraLight 2

FOCUS FS-P250

Portable H.264 Proxy Recorder

*You may need to update AG-HPX255/HPX250 firmware. Please refer to the "service and support" on the Panasonic Website (<http://pro-av.panasonic.net/>). The use of DCF Technologies is under license from Multi-Format, Inc.

LiveU LU40 series

Portable Uplink Unit

AVC-ULTRA Partners

AVC-ULTRA Partners are committed to continue expanding support as Panasonic introduces additional compression modes with AVC-ULTRA

P2 Partners

Specifications of Recording Codec

Recording Codecs	Digital Video			Digital Audio		Recording Times*2
	Sampling Frequency	Quantizing	Video Compression	Recording Audio Signal*1	Headroom	
AVC-Intra200	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	10 bit	MPEG-4 AVC/ H.264 Intra Profile	48 kHz/24 bit, 16 CH 48 kHz/24 bit, 4 CH		Approx. 32 min.
AVC-Intra100	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	10 bit	MPEG-4 AVC/ H.264 Intra Profile	48 kHz/16 bit, 8 CH 48 kHz/16 bit, 4 CH 48 kHz/24 bit, 8 CH 48 kHz/24 bit, 4 CH		Approx. 64 min.
AVC-Intra50	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	10 bit	MPEG-4 AVC/ H.264 Intra Profile	48 kHz/16 bit, 8 CH 48 kHz/16 bit, 4 CH 48 kHz/24 bit, 8 CH 48 kHz/24 bit, 4 CH		Approx. 128 min.
AVC-LongG50	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	10 bit	MPEG-4 AVC/H.264	48 kHz/24 bit, 8 CH 48 kHz/24 bit, 4 CH		Approx. 128 min.
AVC-LongG25	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	10 bit	MPEG-4 AVC/H.264	48 kHz/24 bit, 8 CH 48 kHz/24 bit, 4 CH	12 dB*3/ 18 dB/ 20 dB	Approx. 220 min.
AVC-LongG12	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	8 bit	MPEG-4 AVC/H.264	48 kHz/24 bit, 4 CH		Approx. 256 min.
DVCPRO HD	(59.94 Hz) Y: 74.1758 MHz Pb/Pr: 37.0879 MHz Y: 74.2500 MHz Pb/Pr: 37.1250 MHz	8 bit	DV-Based compression (SMPTE370M)	48 kHz/16 bit, 8 CH 48 kHz/16 bit, 4 CH		Approx. 64 min.
DVCPRO 50	Y: 13.5 MHz Pb/Pr: 6.75 MHz	8 bit	DV-Based compression (SMPTE314M)	48 kHz/16 bit, 8 CH 48 kHz/16 bit, 4 CH		Approx. 128 min.
DVCPRO	Y: 13.5 MHz Pb/Pr: 3.375 MHz	8 bit	DV-Based compression (SMPTE314M)	48 kHz/16 bit, 4 CH 48 kHz/16 bit, 2 CH		Approx. 256 min.
DV	Y: 13.5 MHz Pb/Pr: 3.375 MHz	8 bit	DV Compression (IEC 61834-2)	48 kHz/16 bit, 4 CH 48 kHz/16 bit, 2 CH		Approx. 256 min.

*Each recording codecs differ for every model. Please look at the following table for details. Depending on a model and a codec, upgrade is required. Please go to the Product Information on the Panasonic web page <http://pro-av.panasonic.net/> *1: Each recording audio signal differ for every model. Eight-channel record is impossible for a camera recorder all model. *2: For 1080/60p and 1080/50p, the recording times become 1/2 of those shown above. All of the times apply when single clips are recorded continuously one after the other onto a P2 card. Depending on the number of clips to be recorded, the recordable time may be shorter than the times given. *3: This mode can be chosen only from the AJ-PX270/HPD2500/HPM200/PD500/HPD24. The AG-HPX255/250 cannot perform headroom selection (12 dB fix).

Supported Recording Codec by Model

Recording Codecs	AJ-PX5000G	AJ-HPX3100G	AJ-PX800G	AG-HPX610	AG-HPX370 series	AJ-PX270
AVC-Intra200	✓*1					✓*1
AVC-Intra100	✓	✓	✓	✓	✓	✓
AVC-Intra50	✓	✓	✓	✓	✓	✓
AVC-LongG50	✓		✓			✓
AVC-LongG25	✓		✓			✓
AVC-LongG12	✓		✓			✓
DVCPRO HD	✓	✓	✓	✓	✓	✓
DVCPRO 50	✓	✓	✓	✓	✓	✓
DVCPRO/DV	✓	✓	✓	✓	✓	✓
AVCHD						

Supported AVC-Proxy Recording Mode by Model

Recording Mode	AJ-PX5000G	AJ-HPX3100G	AJ-PX800G	AG-HPX610	AG-HPX370 series	AJ-PX270
AVC-G6 2CH MOV	✓		✓			✓
SHQ 2CH MOV	✓	✓*4	✓	✓*5		✓
HQ 4CH MOV	✓	✓*4		✓*5		
HQ 2CH MOV	✓	✓*4	✓	✓*5		✓
LOW 2CH MOV*	✓	✓*4	✓	✓*5		✓
STD 2CH MP4	✓	✓*4		✓*5	✓*6	

*Each Recording modes differ for every model.

*1: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>). Requires the optional AJ-AKR200G Upgrade Software Key. *2: Requires the optional AJ-YCX250G AVCHD codec board. *3: Requires the optional AJ-YCX500G AVCHD codec board.

Specifications of AVC-Proxy Recording Mode

Recording Mode	Resolution	Video		Audio		
		Codec	Bit Rate	Codec	CH	Bit Rate/1CH
AVC-G6 2CH MOV	1920 x 1080	H.264 High Profile	6 Mbps	AAC-LC	2 CH	64 kbps
SHQ 2CH MOV	960 x 540	H.264 High Profile	3500 kbps	Linear PCM	2 CH	768 kbps
HQ 4CH MOV	640 x 360	H.264 High Profile	1500 kbps	AAC-LC	4 CH	64 kbps
HQ 2CH MOV	640 x 360	H.264 High Profile	1500 kbps	AAC-LC	2 CH	64 kbps
LOW 2CH MOV*	1080i mode: 480 x 270 480 59.94i mode: 352 x 240 (SIF_NTSC) 576 50i mode: 352 x 288 (SIF_PAL) 1080 60/50p mode: 352 x 180 1080 30/25/24p mode: 480 x 270 720 60/50p mode: 320 x 180 720 30/25/24p mode: 480 x 270	H.264 Baseline Profile 800	800 kbps	AAC-LC	2 CH	64 kbps
STD 2CH MP4	320 x 240 (QVGA)	MPEG-4 Simple Profile	1500 kbps	AAC-LC	2 CH	64 kbps

Each Recording modes differ for every model.

	AG-HPX255/250	AG-3DP1G	AJ-HPD2500	AJ-HPM200	AJ-PD500	AG-HPD24
					✓ *1	
	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓
					✓	
					✓	
					✓	
	✓		✓	✓	✓	✓
	✓		✓	✓	✓	✓
	✓		✓	✓	✓	✓
			✓ *2	✓ *2	Playback only *3	
	AG-HPX255/250	AG-3DP1G	AJ-HPD2500	AJ-HPM200	AJ-PD500	AG-HPD24
					✓	
					✓	
					✓	
					✓	
					✓	
	✓ *7				✓	

*4: Requires the optional AJ-YDX30G video encoder board. *5: Requires the optional AG-YDX600G video encoder board. *6: Requires the optional AJ-YAX800G video encoder board. *7: Requires the optional FS-P250 FOCUS Portable H.264 Proxy Recorder.
The use of DCF Technologies is under license from Multi-Format, Inc.

AJ-PX5000G

General

Power Supply:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	29 W (body only, 1080/59.94i, AVC-Intra100 standard recording status, LCD ON) 70 W (with all optional accessories connected and maximum power supplied from each output terminal)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (relative humidity)
Storage Temperature:	-20°C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 3.4 kg (7.5 lbs.) (body only, excluding the battery and accessories)
Dimensions:	147 mm (W) x 267 mm (H) x 342 mm (D) (5-25/32 inches x 10-1/2 inches x 13-15/32 inches) Body only, excluding protrusion

Camera Section

Pickup Device:	2/3-type, 2.2 million pixels, MOS x 3
Lens Mount:	2/3-type bayonet
CC Filter:	A: 3200 K, B: 4300 K, C: 5600 K, D: 6300 K
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Gain Setting:	NORMAL mode: -3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB HIGH SENS mode: -6 dB, -3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB
Digital Super Gain: (DS.GAIN)	Selectable from 6 dB, 10 dB, 12 dB, 15 dB, 20 dB, 24 dB, 28 dB, 34 dB
Super Gain (S.GAIN):	Selectable from 30 dB, 36 dB, 42 dB
Shutter Speed: (Preset)	[59.94 Hz] 60i/60p mode: 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 30p mode*: 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 24p mode*: 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg [50 Hz] 50i, 50p mode: 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 25p mode*: 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg
Shutter Speed: (Synchro Scan)	1/60.1 sec. to 1/7200 sec. (1080/59.94i, 1080/59.94p, 480/59.94i) 1/50.1 sec. to 1/6000 sec. (1080/50i, 1080/50p, 576/50i) 1/30.1 sec. to 1/3600 sec. (1080/29.97p, 480/29.97p)* 1/24.1 sec. to 1/2880 sec. (1080/23.98p, 480/23.98p)* 1/25.1 sec. to 1/3000 sec. (1080/25p, 576/25p)*
Shutter Open Angle:	Configurable between 3 deg and 359.5 deg (in 0.5 deg steps)
Sensitivity:	NORMAL mode: F9 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F10 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i) HIGH SENS mode: F12 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i)
Minimum Subject Illumination:	Approx. 0.004 lx (F1.4, +42 dB (S.GAIN), +34 dB (DS.GAIN))
Image S/N:	62 dB (standard)
Horizontal Resolution:	1000 TV or higher (center)

Memory Card Recorder Section

Recording Media:	P2 card, microP2 card
System Format:	1080/59.94p, 1080/59.94i, 1080/23.98PsF*, 720/59.94p, 480/59.94i, 1080/50p, 1080/50i, 720/50p, 576/50i

Recording Format: AVC-Intra200 (option)*/AVC-Intra100/
AVC-Intra50/AVC-LongG50/AVC-LongG25/
AVC-LongG12/DVCPRO HD/DVCPRO50/
DVCPRO/DV formats switchable

Recording Video Signal:
1080/59.94p, 1080/59.94i, 1080/29.97pN*,
1080/23.98pN*, 720/59.94p, 720/29.97pN*,
720/23.98pN*, 480/59.94i,
1080/50p, 1080/50i, 1080/25pN*,
720/50p, 720/25pN*, 576/50i

*Please see 19 – 20 page for Digital Video, Digital Audio and Proxy Specifications.

Video Input/Output

SDI IN:	BNC x 1 HD SDI: 3 G: 0.8 V [p-p], 75 Ω 1.5 G: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω Switch the menu to use as <VIDEO IN> terminal/return video input terminal/ <GENLOCK IN> terminal
SDI OUT1:	BNC x 1 HD SDI: 3 G: 0.8 V [p-p], 75 Ω, 1.5 G: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω,
SDI OUT2:	BNC x 1 HD SDI: 3 G: 0.8 V [p-p], 75 Ω, 1.5 G: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω
VIDEO OUT:	BNC x 1 Composite: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI type A terminal, not compatible with VIERA Link)

Audio Input/Output

AUDIO IN: (CH1/CH2)	XLR x 2, 3 pin, LINE/MIC/MIC +48 V switchable type LINE: 4 dBu (-3 dBu/0 dBu/4 dBu selectable menu) MIC: -60 dBu (-60 dBu/-50 dBu selectable menu) MIC+48 V: Phantom +48 V supported, -60 dBu (-60 dBu/-50 dBu selectable menu)
MIC IN:	XLR x 1, 5 pin Phantom +48 V (selectable menu), -40 dBu (-50 dBu/-40 dBu selectable menu)
Wireless Slot:	25 pin, D-SUB, -40 dBu, 2 CH supported
AUDIO OUT: (CH1/CH2)	XLR x 1, 5 pin, equilibrium low impedance 4 dBu (-3 dBu/0 dBu/4 dBu selectable menu)
PHONES Out:	Stereo mini jack x 2
Speaker:	20 mm diameter, round x 1

Other Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
TC IN:	BNC x 1, 0.5 V [p-p] - 8 V [p-p], 10 kΩ
TC OUT:	BNC x 1, 2.0 ±0.5 V [p-p], low impedance
DC IN:	XLR x 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), maximum output current 1.5 A
REMOTE:	10 pin
LENS:	12 pin
VF:	20 pin
LAN:	100BASE-TX/10BASE-T
USB 2.0 (Device):	Type B connector, 4 pin
USB 3.0 (Host):	Type A connector, 9 pin
USB 2.0 (Host):	Type A connector, 4 pin
LIGHT:	2 pin, DC 12 V (DC 11.0 V to 17.0 V), maximum output current 4.5 A (up to 50 W equivalent)
LCD Monitor:	8.76 cm (3.45 inches) LCD monitor, approx. 921,000 dots (16:9)

Included Accessories

Shoulder strap, Mount cap

* Available with firmware upgrade. Please go to the Product Information on the Panasonic web page <http://pro-av.panasonic.net/>

AJ-HPX3100G

General

Power Supply:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	34W (main unit only)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (relative humidity)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 3.9 kg (8.6 lbs) (main unit only)
Dimensions:	140 mm (W) x 270.5 mm (H) x 335.8 mm (D) (5-9/16 inches x 10-11/16 inches x 13-1/4 inches) excluding handle and option cover

Camera Section

CCD Elements:	CCD x 3 (2/3-type interline transfer type, RGB, 2,200,000 pixel)
Picture Elements:	Total: 2010 (H) x 1120 (V)
Lens Mount:	2/3-type bayonet
Optical Color Separation:	Prism system
CCl Filters:	A: 3200 K, B: 4300 K, C: 5600 K, D: 6300 K
ND Filters:	CLEAR, 1/4, 1/16, 1/64
Quantizing:	14 bit
Horizontal Drive Frequency:	59.94 Hz: 74.1758 MHz, 50 Hz: 74.25 MHz
Sampling Frequency:	59.94 Hz: 74.1758 MHz, 50 Hz: 74.25 MHz
Digital Signal Process:	59.94 Hz: 74.1758 MHz, 50 Hz: 74.25 MHz
Programmable Gain:	-6 dB, -3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB selectable
Digital Super Gain:	6 dB, 10 dB, 12 dB, 15 dB, 20 dB, 24 dB, (DS.GAIN) 28 dB, 34 dB selectable
Super Gain (S.GAIN):	30 dB, 36 dB, 42 dB selectable
Shutter Speed: (Preset)	1/60 (50 Hz) sec., 1/100 (59.94 Hz) sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg
Shutter Speed: (Syncro Scan)	1/61.7 sec. to 1/7200 sec. (1080/59.94i, 480/59.94i) 1/30.9 sec. to 1/3600 sec. (1080/29.97p, 480/29.97p) 1/24.7 sec. to 1/2880 sec. (1080/23.98p, 480/23.98p) 1/51.4 sec. to 1/6000 sec. (1080/50i, 576/50i) 1/25.7 sec. to 1/3000 sec. (1080/25p, 576/25p)
Sensitivity:	1080/59.94i: F11, 1080/50i: F12 (2000 lx, 89.9 % reflect)

Minimum Subject Illumination:	0.005 lx (F1.4, S.GAIN 42 dB + DS.GAIN 34 dB)
Video S/N:	DNR ON: 59 dB, DNR OFF: 54 dB (standard)
Registration:	Less than 0.03 % (whole zone, without lens distortion)
Horizontal Resolution:	1,000 TV lines (at center standard)

Memory Card Recorder Section

Recording Media:	P2 card
Recording Format:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO50/DVCPRO/DV Format switchable
Recording Video Signal:	1080/59.94i, 1080/29.97p over 59.94i, 1080/23.98p over 59.94i, 1080/23.98p over 59.94i, 1080/29.97pN, 1080/23.98pN, 1080/50i, 1080/25p over 50i, 1080/25pN, 480/59.94i, 480/29.97p over 59.94i, 480/23.98p over 59.94i, 480/23.98p over 59.94i, 576/50i, 576/25p over 50i

Recording Audio Signal:

AVC-Intra100/50: 48 kHz,
16 bit/24 bit switchable, 4 CH
DVCPRO HD/DVCPRO 50: 48 kHz, 16 bit, 4CH
DVCPRO/DV: 48 kHz, 16 bit, 2 CH/4 CH switchable

*Please see 19 – 20 page for Digital Video and Digital Audio Specifications.

Video Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω (switchable to VIDEO IN or Return Video on menu)
SDI OUT:	BNC x 1 HD SDI: 0.8 V [p-p], 75 Ω, SMPTE292M/299M standards SD SDI: 0.8 V [p-p], 75 Ω, SMPTE259M-C/272M-A/ITUR. BT656-4 standards
MON OUT:	BNC x 1 (switchable to HD SDI/SD SDI/Composite on menu) HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω, SMPTE259M-C/272M-A/ITUR. BT656-4 standards Composite: 1.0 V [p-p], 75 Ω
SDI IN:	BNC x 1 (switchable for VIDEO IN/Return Video/ GENLOCK IN, on menu) HD SDI: 0.8 V [p-p], 75 Ω, SMPTE292M/299M standards SD SDI: 0.8 V [p-p], 75 Ω, SMPTE259M-C/272M-A/ITUR. BT656-4 standards

Audio Input/Output

AUDIO IN:	CH1/CH2: XLR x 2, 3 pin LINE/MIC/MIC +48 V switchable LINE: 4 dBu (-3 dBu/0 dBu/4 dBu selectable menu) MIC: -60 dBu (-60 dBu/-50 dBu selectable menu) MIC +48 V: Phantom +48 V, -60 dBu (-60 dBu/-50 dBu selectable menu)
MIC IN :	XLR x 1, 5 pin, Phantom +48 V (ON/OFF selectable menu) -40 dBu (-50 dBu/-40 dBu selectable menu)
WIRELESS IN :	25 pin D-SUB, -40 dBu
AUDIO OUT:	CH1/CH2: XLR x 1, 5 pin, balanced, low-impedance 4 dBu (-3 dBu/0 dBu/4 dBu selectable menu)
PHONES OUT:	Stereo mini jack x 2 (3.5 mm diameter)
Speaker:	28 mm round shape x 1

Other Input/Output Signal

TC IN:	BNC x 1, 0.5 V [p-p] to 8 V [p-p], 10 kΩ
TC OUT:	BNC x 1, low impedance, 2.0 V [p-p] ±0.5 V [p-p]
DC IN:	XLR x 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), max 1.5 A.
LENS:	12 pin
Right Connector:	2 pin, DC 12 V (DC 11.0 V to 17.0 V)
Output Current:	max. 4.5 A (to 50 W)
VF:	20 pin
REMOTE:	10 pin for AJ-RC10G, AG-EC4G
GPS:	6 pin for AJ-GPS910G
USB 2.0 (Host):	4 pin Type-A,
USB 2.0 (Device):	4 pin Type-B

Monitor

LCD Monitor:	81.28 mm (3.2 inches) LCD monitor, approx. 921,000 dots (16:9)
--------------	---

Included Accessories

Shoulder strap, Front audio volume knob (with screw),
AUDIO connector cap, Mount cap, XLR connector cap,
GPS connector cap, Software CD-ROM

AJ-PX800G

General

Power Supply:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	22 W (body + AG-YA600G)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (relative humidity)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 2.8 kg (6.2 lbs.) body only, excluding the battery and accessories
Dimensions:	144 mm (W) x 267 mm (H) x 350 mm (D) (5-21/32 inches x 10-1/2 inches x 13-25/32 inches) Body only, excluding protrusion

Camera Section

Pickup Device:	2/3-type 2.2 million pixels, MOS x 3
Lens Mount:	2/3-type bayonet
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Gain Setting:	NORMAL mode: -3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB HIGH SENS mode: -6 dB, -3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB
Super Gain (S.GAIN):	Selectable from 30 dB, 36 dB, 42 dB
Shutter Speed: (Preset)	60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 30p mode: 1/30 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec. 24p mode: 1/24 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec. 50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec.
Shutter Speed: (Synchro Scan)	60i/60p mode: 1/60.0 sec. to 1/250.0 sec. 30p mode: 1/30.0 sec. to 1/250.0 sec. 24p mode: 1/24.0 sec. to 1/250.0 sec. 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	60i/60p mode: 1/15 sec., 1/30 sec. 30p mode: 1/15 sec. 24p mode: 1/12 sec. 50i/50p mode: 1/12.5 sec., 1/25 sec. 25p mode: 1/12.5 sec.
Shutter Open Angle:	3.0 deg to 360.0 deg (in 0.5 deg steps, angle display)
Sensitivity:	NORMAL mode: F9 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F10 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i) HIGH SENS mode: F12 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i)
Minimum Subject Illumination:	Approx. 0.22 lx (F1.4, +42 dB (S.GAIN))
Image S/N:	62 dB (standard)
Horizontal Resolution:	1000 TV or higher (center)

Memory Card Recorder Section

Recording Media:	P2 card (for microP2 card: adaptor is required)
System Format:	1080/59.94i, 1080/23.98pF, 720/59.94p, 480/59.94i, 1080/50i, 720/50p, 576/50i
Recording Format:	AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25/AVC-LongG12/DVCPRO HD/ DVCPRO50/DVCPRO/DV formats switchable
Recording Video Signal:	1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 720/29.97pN, 720/23.98pN, 480/59.94i, 480/29.97p, 1080/50i, 1080/25pN, 720/50p, 720/25pN, 576/50i, 576/25p

Video Input/Output

SDI OUT/IN*:	BNC x 1 1.5 G HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω
MON OUT:	BNC x 1 (Can be switched to HD SDI/SD SDI/ analog composite on SmartUI.) 1.5 G HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω Composite: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI type A terminal, not compatible with VIERA Link)

Audio Input/Output

Audio IN:	XLR x 2, 3 pin LINE/MIC (switch selection) LINE: 0 dBu MIC: -50 dBu/-60 dBu (menu selection), +48 V ON/OFF (switch selection) MIC IN: XLR x 1, 5 pin
MIC IN:	XLR x1, 3 pin +48 V supported (selectable menu) -40 dBu/-50 dBu/-60 dBu (selectable menu)
Wireless IN:	25 pin, D-SUB, -40 dBu, 2 CH supported
Audio OUT:	Pin jack x 2 (CH1, CH2), Output level: 600 Ω, 316 mV
Phones OUT:	3.5 mm diameter stereo mini jack x1
Speaker:	20 mm diameter, round x 1

Other Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
TC IN/OUT:	BNC x 1, IN/OUT switch selection IN: 0.5 V [p-p] to 8 V [p-p], 10 kΩ OUT: 2.0 ±0.5 V [p-p], Low impedance
DC IN:	XLR x1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), maximum output current 1.5 A
REMOTE:	10 pin
Lens:	12 pin
VF:	20 pin
LAN:	100BASE-TX/10BASE-T
USB 2.0 (Host):	Type A connector, 4 pin
USB 2.0 (Device):	Type B connector, 4 pin
USB 2.0 (Sub Host):	Type A connector, 4 pin (exclusively for wireless module AJ-WM30)

Included Accessories

Shoulder strap, Mount cap

* The optional AJ-YA600G SDI board is required.

*Please see 19 – 20 page for Digital Video, Digital Audio and Proxy Specifications.

AG-HPX610

General

Power Supply:	DC 12 V (DC 11.0 V to 17.0 V)
Power Consumption:	18 W (body only) 22 W (with AG-YDX600G and AG-AYA600G)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (no condensation)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 2.8 kg (6.2 lb) body only, excluding the battery and accessories
Dimensions:	144 mm (W) x 267 mm (H) x 350 mm (D) (5-21/32 inches x 10-1/2 inches x 13-25/32 inches) excluding prominent parts

Camera Section

Pickup Device:	2/3-type MOS x 1
Lens Mount:	2/3-type bayonet type
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Gain Selection**:	-3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB (18 dB: USER SW allocation)
Color Temperature Settings:	ATW, ATW LOCK, A CH, B CH, Preset 3200 K/Preset 5600 K/VAR (2400 K to 9900 K)
Shutter Speed: (Preset)	[59.94 Hz] 60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 30p mode: 1/30 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 24p mode: 1/24 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec. [50 Hz] 50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec.
Shutter Speed: (Syncro Scan)	[59.94 Hz] 60i/60p mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec. [50 Hz] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	[59.94 Hz] 60i/60p mode: 1/15 sec., 1/30 sec. 30p mode: 1/15 sec. 24p mode: 1/12 sec. [50 Hz] 50i/50p mode: 1/12.5 sec., 1/25 sec. 25p mode: 1/12.5 sec.
Shutter Open Angle:	SCENE FILE VFR = OFF 3 deg to 360 deg, 0.5 deg step select SCENE FILE VFR = ON*2 (FRAME RATE 12p or more) 3 deg to 360 deg, 0.5 deg step select SCENE FILE VFR = ON*2 (Less than FRAME RATE 12p) 3 deg to 22.5 deg, 0.5 deg step select 45 deg, 90 deg, 180 deg, 360 deg
Frame Rates*2: (59.94 Hz mode)	1080: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/ 28/30 fps (frames per second) 17 steps 720: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/ 28/30/32/34/36/40/44/48/54/60 fps (frames per second) 25 steps
Frame Rates*2: (50 Hz mode)	1080: 1/2/4/6/9/12/15/18/20/21/22/23/24/25 fps (frames per second) 14 steps 720: 1/2/4/6/9/12/15/18/20/21/22/23/24/25/26/ 27/28/30/32/34/37/42/45/48/50 fps (frames per second) 25 steps
Sensitivity*3:	F12 (2000 lx, 3200 K, 89.9 % reflect, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflect, 1080/50i)
Video S/N*3:	59 dB (standard)
Digital Zoom:	2x, 4x

Memory Card Recorder Section

Recording Media:	P2 card
System Formats:	1080/59.94i, 1080/23.98PsF*, 720/59.94p, 480/59.94i, 1080/50i, 720/50p, 576/50i
Recording Formats:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV formats switchable
Recording Video Signal:	1080/59.94i, 1080/29.97p, 1080/29.97pN, 1080/23.98p, 1080/23.98pA, 1080/23.98pN, 1080/50i, 1080/25p, 1080/25pN, 720/59.94p, 720/29.97p, 720/29.97pN, 720/23.98p, 720/23.98pN, 720/50p, 720/25p, 720/25pN, 480/59.94i, 480/29.97p, 480/23.98p, 480/23.98pA, 576/50i, 576/25p

*Please see 19 – 20 page for Digital Video and Digital Audio Specifications.

Video Input/Output

SDI OUT/IN (OP)*4:	BNC x 1 HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω
MON OUT:	BNC x 1, HD SDI/SD SDI/VBS (Analog Composite) can be switched on SmatUI HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω VBS: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI TypeA terminal), VIERA Link not supported

Audio Input/Output

AUDIO IN:	XLR x 2, 3 pin LINE/MIC switchable, high impedance, LINE: 0 dBu MIC: -50 dBu/-60 dBu (switching via menu) MIC +48 V ON/OFF (switchable)
MIC IN:	XLR x 1, 3 pin +MIC/+48 V switchable, -40 dBu/-50 dBu/-60 dBu (switching via menu)
WIRELESS IN:	25 pin, D-SUB, -40 dBu 2 CH supported
AUDIO OUT:	Pin jack x 2 (CH1/CH2), Output: 316 mV, 600 Ω
PHONES OUT:	ø3.5 mm stereo mini jack x 1
Speaker:	20 mm diameter x 1

Other Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
TC IN/OUT:	IN: BNC x 1, 0.5 V [p-p] to 8 V [p-p], 10 kΩ OUT: BNC x 1, 2.0 V [p-p] ±0.5 V [p-p], low impedance (IN/OUT switching via menu)
DC IN:	XLR x 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), Max. 1.5 A
REMOTE:	10 pin
LENS:	12 pin
VF:	20 pin
LAN*5:	100BASE-TX/10BASE-T
USB 2.0 (Host):	Type-A, 4 pin
USB 2.0 (Device):	Type-B, 4 pin
USB 2.0 (Host)*5:	Type-A, 4 pin (for Wireless Module AJ-WM30 or for UPLINK USB cable)

Included Accessories

Shoulder strap, Mount cap*, CD-ROM

*1: When SHOOTING MODE is NORMAL on SYSTEM SETUP MENU,
-3 dB setting is treated as 0dB and 18dB setting can not be active.

*2: AG-SFU602 Upgrade Software Key is required.

*3: When SHOOTING MODE is LOW LIGHT on SYSTEM SETUP MENU
*4: Mounting the optional AG-AYA600G HD/SD SDI Input Board makes this
system SDI Input. (SDI OUT/IN switching via menu)

*5: When Upgrade Software Key AG-SFU601 is installed, the network
function of cable LAN and wireless LAN becomes effective.

*6: It is attached to the main body.

P2

AVCCAM

MONITOR

AG-HPX370 series

General

Power Supply:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	Approx. 19 W (with standard VF, lens, LCD monitor ON)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (no condensation)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 3.6 kg (7.9 lbs.) excluding battery and accessories Approx. 5 kg (11.0 lbs.) with supplied Fujinon lens
Dimensions :	246 mm (W) x 251 mm (H) x 441 mm (D) (9-11/16 inches x 9-7/8 inches x 17-3/8 inches) excluding prominent parts 246 mm (W) x 251 mm (H) x 549 mm (D) (9-11/16 inches x 9-7/8 inches x 21-5/8 inches) with Fujinon lens, excluding prominent parts

Camera Section

Pickup Device:	2.2 million pixels, Progressive MOS Image sensor x 3
Lens Mount:	1/3-type bayonet type
Optical System:	Prism system
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Gain Selection:	-3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 24 dB
Shutter Speed:	50i/50p mode: 1/50 (OFF) sec., 1/60 sec., (Preset) 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 30p mode: 1/30 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 24p mode: 1/24 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec.
Shutter Speed:	50i mode: 1/50.0 sec. to 1/250.0 sec. (Variable) 25p mode: 1/25.0 sec. to 1/250.0 sec. 60i mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec.
Shutter Speed :	50i/50p mode: 1/12.5 sec., 1/25 sec. (Slow) 25p mode: 1/6.25 sec., 1/12.5 sec. 60i/60p mode: 1/15 sec., 1/30 sec. 30p mode: 1/7.5 sec., 1/15 sec. 24p mode: 1/6 sec., 1/12 sec.
Aperture Angle:	3 deg to 359.5 deg, 0.5 deg step select
Frame Rate:	50 Hz mode: variable 12/15/18/20/21/22/23/24/ 25/26/27/28/30/32/34/37/42/45/48/50 fps (frames per second) 20 steps 59.94 Hz mode: variable 12/15/18/20/21/22/24/ 25/26/27/28/30/32/34/36/40/44/48/54/60 fps (frames per second) 20 steps
Sensitivity:	F11 (2000 lx, 3200 K, 89.9 % reflect, 1080/50i) F10 (2000 lx, 3200 K, 89.9 % reflect, 1080/59.94i)
Minimum Subject Illumination:	0.4 lx (F1.6 , Gain 24 dB , shutter speed 1/30 sec.)
Horizontal Resolution:	More than 1000 TV lines (center)

Memory Card Recorder

Recording Media:	P2 Card
Recording Video Signal:	1080/59.94i, 1080/29.97p, 1080/29.97pN, (59.94 Hz) 1080/23.98p, 1080/23.98pA, 1080/23.98pN, 720/59.94p, 720/29.97p, 720/29.97pN, 720/23.98p, 720/23.98pN, 480/59.94i, 480/29.97p, 480/23.98p, 480/23.98pA
Recording Video Signal:	1080/50i, 1080/25p, 1080/25pN, 720/50p, (50 Hz) 720/25p, 720/25pN, 576/50i, 576/25p

*Please see 19 – 20 page for Digital Video and Digital Audio Specifications.

Video Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p] 75 Ω
VIDEO OUT:	BNC x 1, 1.0 V [p-p] 75 Ω
SDI OUT:	BNC x 2, 0.8 V [p-p] 75 Ω HD/SD switchable

Audio Input/Output

MIC IN:	XLR x 1, 3 pin, +48 V compatible MIC: -40 dBu/-50 dBu/-60 dBu (switchable on menu)
Audio IN:	XLR x 2 (CH1/CH2), 3 pin LINE/MIC/+48 V switchable LINE: 0 dBu MIC: -50 dBu/-60 dBu (switchable on menu)
Wireless:	25 pin, D-SUB, -40 dBu
Audio Out:	Pin jack x 2 (CH1/CH2), Output level: 316 mV, 600 Ω,
Earphone:	Stereo mini jack (3.5 mm diameter)
Internal Speaker:	28 mm round shape x 1

Other Input/Output Signal

TC In:	BNC x 1, 0.5 V [p-p] to 8 V [p-p], 10 kΩ
TC Out:	BNC x 1, low impedance, 2.0 V [p-p] ±0.5 V [p-p]
IEEE 1394:	6 pin, digital In/Out, based on IEEE 1394 Standard
DC In:	XLR x 1, 4 pin, DC12 V (DC 11.0 V to 17.0 V)
DC Out:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), max 1.5 A.
Remote:	10 pin
Lens:	12 pin
USB 2.0 (Device):	Type-B, 4 pin
USB 2.0 (Host):	Type-A, 4 pin

Monitor and Viewfinder

LCD Monitor:	3.2 inch approx. 921,000 dots (16:9)
Viewfinder:	0.45 inch approx. 1,226,000 dots (16:9)

Included Accessories

Fujinon lens, Front lens cap, Rear lens cap, Zoom lever,
Lens connector cap, Lens hood, Lens hood cap, Eye cup,
Shoulder belt, Front audio level knob with screw, Mount cap,
BNC connector cap, XLR connector cap, Software CD-ROM

AJ-PX270

General

Power Supply:	DC 7.2 V (when the battery is used) DC 12 V (when the AC adaptor is used)
Power Consumption:	19.5 W (when the LCD monitor is used)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 2.2 kg (4.9 lbs.) body only, excluding lens hood, battery, and accessories Approx. 2.6 kg (5.7 lbs.) including lens hood, supplied battery, and microphone holder
Dimensions:	176 mm(H) x 171 mm(W) x 329 mm (D) (6-15/16 inches x 6-23/32 inches x 12-15/16 inches) (excluding protrusion)

Camera Section

Pickup Device:	1/3-type 2.2 million pixels, MOS solid state image sensor x3
Lens:	Optical image stabilizer lens, optical 22x motorized zoom F1.6 to F3.2 (f=3.9 mm to 86 mm) 35 mm conversion: 28 mm to 616 mm (16.9)
Filter Diameter:	72 mm
Optical System:	Prism system
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Shortest Shooting Distance:	1.1 m from the front lens (M.O.D.) Approx. 0.06 m from front lens (When Macro=On, at wide-end)
Gain Setting:	L/M/H selector switch-3 dB to 18 dB (in 1 dB steps) (Negative value of gain is only in [HIGH SENS.] mode.) (When assigning [S.GAIN] to the USER button: Switching between 24 dB, 30 dB, and 36 dB)

Color Temperature Setting:

	ATW, ATW LOCK, A CH, B CH, preset 3200 K/preset 5600 K/VAR (2000 K to 15000 K)
Shutter Speed: (Preset)	[59.94 Hz] 60i/60p mode: 1/60 (shutter off) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 30p mode: 1/30 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 24p mode: 1/24 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. [50 Hz] 50i/50p mode: 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec.

Shutter Speed: (Synchro Scan)	[59.94 Hz] 60i/60p mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec. [50 Hz] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
----------------------------------	--

Shutter Speed: (Slow)

	Setting is possible when [VFR]=[OFF] [59.94 Hz] 60i/60p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/15 sec., 1/30 sec. 30p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6sec., 1/15 sec. 24p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec. [50 Hz] 50i/50p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec.
--	--

Shutter Open Angle:	3.0 deg to 180.0 deg to 360.0 deg (in 0.5 deg steps, angle display)
---------------------	--

Frame Rate:	1080/59.94p: 1/2/4/6/9/12/15/18/20/21/22/24/ 25/26/27/28/30/32/34/36/40/44/48/54/60 fps (frames per second) 25 steps 1080/50p: 1/2/4/6/9/12/15/18/20/21/22/23/ 24/25/26/27/28/30/32/34/37/42/45/48/50 fps (frames per second) 25 steps
-------------	---

Sensitivity:	[HIGH SENS.] mode F11 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F12 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i)
Minimum Subject Illumination:	0.02 lx (F1.6, gain 18 dB, [1S.EXP.], [HIGH SENS.] mode)
Digital Zoom:	2x, 5x, 10x
Lens Hood:	Hood with lens cover

Memory Card Recorder Section

Recording Media:	microP2 card, P2 card
Recording Slot:	microP2 card slot x 2, P2 card slot x 1
System Format:	1080/59.94p, 1080/59.94i, 720/59.94p, 480/59.94i 1080/50p, 1080/50i, 720/50p, 576/50i
Recording Format:	AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25/AVC-LongG12/DVCPRO HD/ DVCPRO50/DVCPRO/DV formats
Recording Video Signal:	1080/59.94p, 1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 480/59.94i, 480/29.97p 1080/50p, 1080/50i, 1080/25pN, 720/50p, 576/50i, 576/25p

*Please see 19 – 20 page for Digital Video, Digital Audio and Proxy Specifications.

Video Input/Output

SDI OUT:	BNC x 1, HD (3 G/1.5 G), SD: 0.8 V [p-p], 75 Ω
VIDEO OUT:	BNC x 1, Also used as the GENLOCK IN, IN/OUT switch selection Composite: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI type A terminal, not compatible with VIERA Link)

Audio Input

Built-in Microphone:	Supports stereo microphone
AUDIO INPUT 1/AUDIO INPUT 2:	XLR x 2, 3 pin.Input high impedance, LINE/MIC switch selection LINE: 4 dBu/0 dBu (selectable menu) MIC: -40 dBu/-50 dBu/-60 dBu (selectable menu), +48 V ON/OFF (switch selection)

Audio Output

AUDIO OUT:	3.5 mm diameter stereo mini jack x 1, Output level: 600 Ω, 316 mV
Headphones:	3.5 mm diameter stereo mini jack x 1 100 Ω, -16 dBV (32 Ω load, at maximum output level)
Speaker:	20 mm diameter, round x 1

Other Input/Output

CAM REMOTE:	2.5 mm diameter super mini jack x 1 ZOOM S/S 3.5 mm diameter mini jack x 1 FOCUS IRIS
GENLOCK IN:	BNC x 1, also used as the VIDEO OUT, IN/OUT switch selection, 1.0 V [p-p], 75 Ω
TC IN/OUT:	BNC x 1, Used as the input and output terminals, IN/OUT switch selection Input: 1.0 V [p-p] - 4.0 V [p-p], 10 kΩ Output: 2.0 V [p-p] ±0.5 V [p-p], low impedance
LAN:	100BASE-TX/10BASE-T
USB 2.0 (Device):	Type miniB connector, 4 pin
USB 3.0 (Host):	Type A connector, 9 pin
USB 2.0 (Sub-Host):	Type A connector, 4 pin (exclusively for wireless module AJ-WM30)
DC IN 12V:	DC 12 V (DC 10.5 V - 13.5 V), EIAJ type 4

Monitor and Viewfinder

LCD Monitor:	3.5 type QHD color monitor (Approx. 1560000 dots)
Viewfinder:	0.5 type OLED (organic EL display) (Approx. 2360000 dots, video display area: Approx. 1770000 dots)

Included Accessories

Battery (VW-VBD58), Shoulder strap, Battery charger, AC adaptor, Microphone holder, Screw for microphone holder (12 mm), Power code x 2, Eye cup, Lens hood, Grip belt
--

AG-HPX255/HPX250

General

Power Supply:	DC 7.2 V (when the battery is used) DC 7.9 V (when the AC adaptor is used)
Power Consumption:	AG-HPX255: 15.0 W (when the LCD monitor is used) 17.5 W (when the LCD monitor and AG-EC4G are used) AG-HPX250: 15.0 W (when the LCD monitor is used)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 2.5 kg (5.5 lb) excluding battery and accessories
Dimensions:	180 mm (W) x 195 mm (H) x 438 mm (D) (7 inches x 7-11/16 inches x 17-1/4 inches) excluding battery, accessories and protrusions

Camera Section

Pickup Devices:	1/3-type progressive, 2.2 megapixel, 3MOS sensor
Effective Pixels:	1920 (H) x 1080 (V)
Lens:	Optical image stabilizer lens, 22x motorized zoom F1.6 – 3.2 (f=3.9 mm – 86 mm), 35 mm conversion: 28 mm – 616 mm (16:9)
Filter Diameter:	72 mm
Optical System:	Prism color separation
ND filter:	CLEAR, 1/4, 1/16, 1/64
Minimum Shooting Distance:	Approx. 1 m
Hood:	Large-sized lens hood with wide angle of view
Gain Settings:	0 dB, +3 dB, +6 dB, +9 dB, +12 dB, +15 dB, +18 dB, +24 dB, 30 dB, (+24 dB, +30 dB: USER SW allocation only)
Shutter Speed: (Preset)	60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 30p mode: 1/30 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 24p mode: 1/24 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec.
Shutter Speed: (Synchro Scan)	60i/60p mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec. 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	60i/60p mode: 1/15 sec., 1/30 sec. 30p mode: 1/7.5 sec., 1/15 sec. 24p mode: 1/6 sec., 1/12 sec. 50i/50p mode: 1/12.5 sec., 1/25 sec. 25p mode: 1/6.25 sec., 1/12.5 sec.
Shutter Open Angle:	3 degrees to 359.5 degrees in 0.5 degree increments
Frame Rates:	59.94 Hz mode: 1080p: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/ 27/28/30 fps (frames per second) 17 steps 720p: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/ 27/28/30/32/34/36/40/44/48/54/60 fps (frames per second) 25 steps 50 Hz mode: 1080p: 1/2/4/6/9/12/15/18/20/21/22/23/24/ 25 fps (frames per second) 14 steps 720p: 1/2/4/6/9/12/15/18/20/21/22/23/24/25/ 26/27/28/30/32/34/37/42/45/48/50 fps (frames per second) 25 steps

Sensitivity:	59.94 Hz mode: (at 2000 lx, 3200 K, 89.9 % reflection) F7 (1080/59.94i, P.A.P FILTER: TYPE2) F10 (1080/59.94i, P.A.P FILTER: TYPE1) 50 Hz mode: (at 2000 lx, 3200 K, 89.9 % reflection) F8 (1080/50i, P.A.P FILTER: TYPE2) F11 (1080/50i, P.A.P FILTER: TYPE1)
Minimum Illumination:	0.2 lx (F1.6, Gain +30 dB, shutter speed 1/30 sec., P.A.P FILTER: TYPE1)
Digital Zoom:	x 2, x 5, x 10

Memory Card Recorder Section

Recording Media:	P2 card
Recording Formats:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO50/DVCPRO/DV formats switchable

*Please see 19 – 20 page for Digital Video and Digital Audio Specifications.

Video Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
VIDEO OUT:	Pin jack x 1, 1.0 V [p-p], 75 Ω
SDI OUT:	BNC x 1, 0.8 V [p-p], 75 Ω, HD/SD switching via menu, 10 bit 4:2:2 via camera through out
HDMI OUT:	HDMI TypeA

Audio Input/Output

Built-in MIC IN:	Supports stereo microphones
AUDIO IN:	XLR x 2 (INPUT 1, INPUT 2), 3 pin LINE/MIC/+48 V switchable, LINE: 0 dBu, MIC: -40 dBu/-50 dBu/-60 dBu switching via menu
AUDIO OUT:	Pin jack x 2 (CH1/CH2), Output: 316 mV, 600 Ω
Headphone:	ø3.5 mm stereo mini jack x 1
Internal Speaker:	20 mm diameter x 1

Other Input/Output

REMOTE:	10 pin, for AG-EC4G (AG-HPX255 only)
TC IN/OUT:	BNC x 1, IN: 0.5 V [p-p] to 8 V [p-p], 10 kΩ OUT: low impedance, 2.0 V [p-p] ±0.5 V [p-p]
CAM REMOTE:	2.5 mm diameter, Super mini jack x 1 (ZOOM, S/S) 3.5 mm diameter Mini jack x 1 (FOCUS, IRIS)
IEEE 1394*:	6 pin, digital input/output (compliant with IEEE 1394)
USB 2.0 (Device)*:	Type-miniB, 4 pin
USB 2.0 (Host)*:	Type-A, 4 pin

Monitor and Viewfinder

LCD Monitor:	87.63 mm (3.45 inches) color LCD monitor with approx. 921,000 dots (16:9)
Viewfinder:	11.43 mm (0.45 inches) color LCD monitor with approx. 1,226,000 dots (16:9)

Included Accessories

AC adaptor Battery charger, AC cable, DC cable, 5400 mAh battery pack, Wireless remote controller with button-type battery, Microphone holder, Eye cup, Shoulder strap, P2 card driver software install CD-ROM

*AG-HPX255EJ/HPX250EJ don't support input via IEEE 1394 and USB 2.0.

AG-3DP1G

General

Power Supply:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	38 W (Camera only)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (relative humidity)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 6.1 kg (13.4 lb) (Camera section only) Approx. 7.9 kg (17.4 lb) (including an AJ-HVF21KG, a DIONIC battery, two P2 cards, and an AJ-MC900G microphone)
Dimensions:	235 mm (W) x 270.5 mm (H) x 667.5 mm (D) (9-1/4 inches x 10-5/8 inches x 26-1/4 inches) (Camera Section only, excluding protrusions)

Camera Section

Pickup Devices:	1/3-type progressive, 2.2 megapixel, 3MOS sensor x 2
Lens:	Optical 17x, F1.6 (Wide) to F3.4 (Tele) Focal distance: f 4.6 mm to 79 mm (35 mm equivalent: 35.0 mm to 602 mm)
Optical System:	Prism system
Distance Between the Optical Axes:	Approx. 58 mm (2-5/16 inches)
Reference Plane Adjustment Range:	Approx. 1.1 m (43-5/16 inches) to ∞
ND Filter:	CLEAR, 1/4, 1/16, 1/64
Gain Settings:	0 dB, +3 dB, +6 dB, +9 dB, +12 dB
Shutter Speed:	60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec. 30p mode: 1/30 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec. 24p mode: 1/24 (OFF) sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec. 50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec. 25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec.
Shutter Speed: (Synchro Scan)	60i/60p mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec. 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	60i/60p mode: 1/15 sec., 1/30 sec. 30p mode: 1/15 sec. 24p mode: 1/12 sec. 50i/50p mode: 1/12.5 sec., 1/25 sec. 25p mode: 1/12.5 sec.
Frame Rates:	59.94 Hz mode: 12/15/18/20/21/22/24/25/26/ 27/28/30/32/34/36/40/44/48/54/60 fps (frames per second) 20 steps 50 Hz mode: 12/15/18/20/21/22/23/24/25/26/ 27/28/30/32/34/37/42/45/48/50 fps (frames per second) 20 steps

Memory Card Recorder Section

Recording Media:	P2 card
Recording Formats:	AVC-Intra100/AVC-Intra50
Recorded Video Signals:	59.94 Hz mode: 1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 720/29.97pN, 720/23.98pN 50 Hz mode: 1080/50i, 1080/25pN, 720/50p, 720/25pN

*Please see 19 – 20 page for Digital Video and Digital Audio Specifications.

Video Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
HD SDI OUT:	BNC x 2 (L/R), 0.8 V [p-p], 75 Ω
HD SDI MONITOR OUT:	BNC x 1, 0.8 V [p-p], 75 Ω
HDMI OUT:	A type x 1 Simultaneous output with HD SDI OUT is not possible.
HD SDI RETURN IN:	BNC x 1, 0.8 V [p-p], 75 Ω

Audio Input/Output

MIC IN:	XLR, 5 pin, +48 V (available) available menu selections: -40 dBu/-50 dBu
AUDIO IN:	XLR x 2 (CH1, CH2), 3 pin LINE/MIC/+48 V (selectable) LINE: available menu selections: +4 dBu/0 dBu/-3 dBu MIC: available menu selections: -50 dBu/-60 dBu
WIRELESS:	25 pin, D-SUB, -40 dBu
Earphone:	ø3.5 mm stereo mini jack x 2
Internal Speaker:	28 mm diameter x 1

Other Input/Output

TC IN:	BNC x 1, 0.5 V [p-p] to 8 V [p-p], 10 kΩ
TC OUT:	BNC x 1, low impedance, 2.0 V [p-p] ±0.5 V [p-p]
DC IN:	XLR x 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), Maximum rated current: 1.5 A
REMOTE:	10 pin
CAMERA REMOTE:	ZOOM S/S: Super mini jack (2.5 mm diameter) x 1 FOCUS IRIS: Super mini jack (3.5 mm diameter) x 1 CONVERGENCE: Super mini jack (2.5 mm diameter) x 1

LCD Monitor

LCD monitor:	82 mm (3.2 inch) color LCD monitor with approx. 921,000 dots (16:9)
--------------	--

Included Accessories

Shoulder belt, Microphone holder, XLR Connector Cap*, Lens Cap*, BNC Cap*, CD-ROM
--

*These accessories are attached to the units.

AJ-HPD2500

General

Power Supply:	AC 100 V to 240 V, 50 Hz/60 Hz 65 W (full option)
Operating Temperature:	5 °C to 40 °C (41 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Storage Temperature:	-20 °C to 50 °C (-4 °F to 122 °F)
Weight:	Approx. 13 kg (28.66 lbs)
Dimensions:	424.0 mm (W) x 175.2 mm (H) x 414.7 mm (D) (16-3/4 inches x 6-15/16 inches x 16-3/8 inches) excluding feet, connector and jog dial.
Recording Media:	P2 card, SD/SDHC Memory Card (AVCHD Recording*)
Recording Format:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV/AVCHD*1 selectable
Recording Video Signal:	1080/59.94i, 1080/23.98p, 1080/24p, 1080/29.97p, 1080/25p, 1080/50i, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Recording Audio Signal:	AVC-Intra100/AVC-Intra50: 48 kHz, 16 bit 8 CH/24 bit 4 CH selectable DVCPRO HD: 48 kHz, 16 bit, 8 CH DVCPRO 50: 48 kHz, 16 bit, 4 CH DVCPRO/DV: 48 kHz, 16 bit, 2 CH/4 CH selectable

Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra100/DVCPRO HD (59.94 Hz): Y: 74.1758 MHz, Pb/Pr: 37.0879 MHz (50 Hz): Y: 74.2500 MHz, Pb/Pr: 37.1250 MHz DVCPRO 50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz DVCPRO: Y: 13.5 MHz, Pb/Pr: 3.375 MHz
Quantizing:	AVC-Intra100/AVC-Intra50: 10 bit DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bit
Compression Format:	AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra100: Y:Pb:Pr = 4:2:2
Resolution:	AVC-Intra100: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) AVC-Intra50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)

Video Input

Analog Composite Input:	BNC x 1 (loop-through x 1), 75 Ω auto (Video In), 1.0 V [p-p] (75 Ω)
Reference Input:	BNC x 1 (loop-through x 1), Black Burst/HD 3 value SYNC, 75 Ω auto
SDI Input:	BNC x 1, (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard, ITU-R BT.656-4 standard

Video Output

SD Analog Composite Output:	BNC x 1 (Super ON/OFF)
SDI Output:	BNC x 2, (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard, ITU-R BT.656-4 standard
SD SDI MON Output:	BNC x 1, SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
VideoAdjustment Range:	Output Gain: -∞ to +3 dB or -∞ to +6 dB (Menu switchable) Chroma Output Gain: -∞ to +3 dB Chroma Phase: ±30° Setup Level: ±10 % Sink Phase: ±15 μs SC Phase: ±180°

Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (sync video)
Quantizing:	16 bit
Frequency Response:	20 Hz to 20 kHz, ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, emphasis off, "A" weighted)
Distortion:	Less than 0.1 % (1 kHz, emphasis off, reference level)
Cross Talk:	Less than -80 dB (1 kHz, between 2 channels)
Headroom:	20 dB/18 dB/12 dB switchable
De-emphasis:	T1 = 50 μsec, T2 = 15 μsec (ON/OFF auto)

Audio Input

Analog Input:	XLR x 2 (CH1/CH2), 600 Ω/high-impedance switchable, +4 dBu/0 dBu/-3 dBu/-20 dBu switchable
Digital Input:	BNC x 4 (CH1/2, CH3/4, CH5/6, CH7/8), AES/EBU format SMPTE 276M SDI Input: BNC x 1 (HD SDI Input/SD SDI Input switchable) HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard

Audio Output

Analog Output:	XLR x 2, low-impedance, +4 dBu/0 dBu/-3 dBu/-20 dBu switchable
Digital Output:	BNC x 4 (CH1/2, CH3/4, CH5/6, CH7/8), AES/EBU format SMPTE 276M
SDI Output:	BNC x 2 (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
SD SDI MON Output:	BNC x 1 HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
Monitor Output:	XLR x 2 (CH1/CH2), low-impedance, +4 dBu/0 dBu/-3 dBu/-20 dBu switchable
Headphones:	Stereo mini jack (3.5 mm diameter), 8 Ω, variable level

Other Input/Output

Time Code Input:	BNC x 1, 0.5 V [p-p] to 8.0 V [p-p], 10 kΩ
Time Code Output:	BNC x 1, 2.0 V [p-p] ±0.5 V [p-p], low impedance
RS-232C Input/Output:	D-sub 9 pin, RS-232C Interface x 1
RS-422A Input/Output:	D-sub 9 pin, RS-422A Interface x 1
Parallel:	D-sub 25 pin x 1
Encoder remote:	D-sub 15 pin x 1
USB 2.0:	Host x 1, Device x 1
LAN:	1000BASE-T/100BASE-TX/10BASE-T x 1
eSATA:	eSATA 3Gbit port x 1

*1: When using the AJ-YXC250G AVCHD codec board. Only possible when simultaneously recording P2HD and AVCHD. Recording only AVCHD is not possible. *2: To record and play back AVCHD is only possible when an AJ-YXC250G AVCHD codec board (optional) is installed.

AJ-HPM200

General

Power Source:	AC 100 V to 240 V, 50 Hz/60 Hz 60 W DC 12 V/4.8 A
Power Consumption:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 6.6 kg (14.55 lbs)
Dimensions:	301 mm (W) x 120 mm (H) x 412mm (D) (11-7/8 inches x 4-3/4 inches x 16-1/4 inches)
Recording Format:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV/AVCHD*1 selectable
Recording Video Signal:	1080/59.94i, 1080/23.98p, 1080/24p, 1080/29.97p, 1080/25p, 1080/50i, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Recording Audio Signal:	AVC-Intra100/AVC-Intra50: 48 kHz, 16 bit 8 CH/24 bit 4 CH selectable DVCPRO HD: 48 kHz, 16 bit, 8 CH DVCPRO 50: 48 kHz, 16 bit, 4 CH DVCPRO/DV: 48 kHz, 16 bit, 2 CH/4 CH selectable
Recording Media:	P2 card

Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra100/DVCPRO HD (59.94 Hz): Y: 74.17586 MHz, Pb/Pr: 37.0879 MHz (50 Hz): Y: 74.2500 MHz, Pb/Pr: 37.1250 MHz DVCPRO 50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz DVCPRO: Y: 13.5 MHz, Pb/Pr: 3.375 MHz
Quantizing:	AVC-Intra100/AVC-Intra50: 10 bit DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bit
Compression Format:	AVC-Intra100/AVC-Intra50: H.264/AVC Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra100: Y:Pb:Pr = 4:2:2
Resolution:	AVC-Intra100: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) AVC-Intra50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)

Video Input Signal

Analog Composite Input:	BNC x 1 (VIDEO IN), 1.0 V [p-p] (75 Ω)
Reference Input:	BNC x 1 (loop-through x 1), Black Burst/HD 3 value SYNC, 75 Ω auto
SDI Input:	BNC x 1, (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard, ITU-R BT.656-4 standard

Video Output Signal

SD Analog Composite Output:	BNC x 1
SDI Output:	BNC x 1, (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard, ITU-R BT.656-4 standard

Video Adjustment Range

Output Gain:	−∞ to +3 dB or −∞ to +6 dB
Chroma Output Gain:	−∞ to +3 dB
Chroma Phase:	±30°
Setup Level:	±10 %
Sink Phase:	±15 μs
SC Phase:	±180°

Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (sync video)
Quantizing:	AVC-Intra100/AVC-Intra50: 24 bit/16 bit (selectable) DVCPRO HD/DVCPRO50/DVCPRO/DV: 16 bit
Frequency Response:	20 Hz to 20 kHz, ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, emphasis off, "A" weighted)
Distortion:	Less than 0.1% (1 kHz, emphasis off, reference level)
Cross Talk:	Less than −80 dB (1 kHz, between 2 channels)
Headroom:	20/18/12 dB switchable
De-emphasis:	T1=50 μsec, T2=15 μsec (ON/OFF auto)

Audio Input

Audio (Analog) Input:	XLR x 4 (CH1/CH2/CH3/CH4), 600 Ω/high-impedance switchable, +4 dBu/0 dBu/−3 dBu/−20 dBu switchable LINE/MIC/MIC+48 V switchable at CH2 MIC: −60 dBu, MIC+48 V: Phantom +48 V, −60 dBu
Digital Input:	BNC x 2 (CH1/2, CH3/4), AES/EBU format SMPTE 276M
SDI Input:	BNC x 1 HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard

Audio Output

Audio (Analog) Output:	XLR x 4 (CH1/CH2/CH3/CH4), low-impedance, +4 dBu/0 dBu/−3 dBu/−20 dBu switchable
Digital Input:	BNC x 2 (CH1/2, CH3/4), AES/EBU format SMPTE 276M
SDI Output:	BNC x 1 (HD/SD switchable) HD SDI: SMPTE 292M/296M/299M standard SD SDI: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
Monitor Output:	Pin jack x 2, −8 dBV, 600 Ω
Headphones:	Stereo mini jack (3.5 mm diameter), 8 Ω, variable level

Other Input/Output

Time Code Input:	BNC x 1, 0.5 V [p-p] to 8.0 V [p-p], 10 kΩ
Time Code Output:	BNC x 1, 2.0 V [p-p] ± 0.5 V [p-p], low impedance
RS-422A Input:	D-sub 9 pin, RS-422A Interface
IEEE 1394 Input/Output:	6 pin x 1, 400 Mbps/200 Mbps/100 Mbps switchable IEEE 1394-1995 standard IEC 61883-Part1, Part2 standard SMPTE 396M standard AV/C Command Set standard
USB 2.0:	Host x 1, Device x 1
LAN:	1000BASE-T/100BASE-TX/10BASE-T x 1
eSATA:	eSATA 3Gbit port x 1

*1: When an AJ-YXC250G AVCHD codec board (optional) is installed.

*2: All of the above times apply when single clips are recorded continuously one after the other on the P2 card. Depending on the number of the clips to be recorded, the recordable time may be shorter than the times given above.

AJ-PD500

General

Power Source:	AC 100 ~ 240 V, 50 Hz/60 Hz, 45 W DC 12 V, 3.6 A (included option)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Storage Temperature:	-20 °C to 50 °C (-4 °F to 122 °F)
Weight:	Approx. 3.65 kg (8.05 lbs) (main unit only)
Dimensions:	210 mm (W) x 125.5 mm (H) x 253 mm (D) (8-9/32 inches x 4-15/16 inches x 9-31/32 inches) (not including the Handle, set foot, knob and terminal)
Recording Media:	P2 card, microP2 card
Recording Formats:	AVC-Intra200 (option)*/AVC-Intra100/ AVC-Intra50/AVC-LongG50/AVC-LongG25/ AVC-LongG12/DVCPRO HD/ DVCPRO50/DVCPRO/DV (selectable)
Proxy:	File Format: MP4 (ISO/IEC14496 standard), MOV (QuickTime format) Video Compression Formats: MPEG4 Simple Profile, H.264/AVC Baseline Profile, H.264/AVC High Profile Audio: AAC-LC, Linear PCM
Video Recording Signals:	1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 1080/29.97p*, 1080/25p*, 1080/24p*, 1080/23.98p*, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Audio Recording Signals:	AVC-Intra200 (option)*/ 48 kHz 24 bit 16 CH AVC-Intra100/AVC-Intra50: 48 kHz 24 bit 8 CH, 48 kHz 16 bit 8 CH AVC-LongG50/AVC-LongG25: 48 kHz 24 bit 8 CH AVC-LongG12: 48 kHz 16 bit 4 CH DVCPRO HD: 48 kHz 16 bit 8 CH DVCPRO 50/DVCPRO: 48 kHz 16 bit 4 CH

Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra200 (option)*/AVC-Intra100/ AVC-LongG50/AVC-LongG25/DVCPRO HD: (59.94 Hz) Y: 74.1758 MHz, Pb/Pr: 37.0879 MHz (50 Hz) Y: 74.2500 MHz, Pb/Pr: 37.1250 MHz AVC-Intra100/AVC-LongG25 (1080/59p) Y: 148.3516 MHz, Pb/Pr: 74.1758 MHz (1080/50p) Y: 148.5000 MHz, Pb/Pr: 74.2500 MHz DVCPRO50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz DVCPRO: Y: 13.5 MHz, Pb/Pr: 3.375 MHz
Quantizing:	AVC-Intra200 (option)*/AVC-Intra100/ AVC-Intra50/AVC-LongG50/AVC-LongG25: 10 bit AVC-LongG12/DVCPRO HD/ DVCPRO50/DVCPRO/DV: 8 bit
Video Compression Methods:	AVC-Intra200 (option)*/AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile AVC-LongG50/AVC-LongG25/AVC-LongG12*/ AVC-LongG6*: MPEG-4 AVC/H.264 High Profile DVCPRO HD: DV-Based Compression (SMPTE ST 370) DVCPRO50/DVCPRO: DV-Based Compression (SMPTE ST 314) DV: DV Compression (IEC 61834-2)
Color Sampling:	AVC-Intra200 (option)*/AVC-Intra100/ AVC-LongG50/AVC-LongG25: Y: Pb: Pr = 4: 2: 2

Resolution:	AVC-Intra200 (option)*/AVC-Intra100/ AVC-LongG50/AVC-LongG25/AVC-LongG12: 1920 x 1080 (1080/59.94i, 1080/50i), 1280 x 720 (720/59.94p, 720/50p) AVC-Intra100/AVC-LongG25: 1920 x 1080 (1080/59.94p, 1080/50p) AVC-Intra50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)
-------------	--

Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (synchronized with video)
Quantizing:	AVC-Intra200 (option)*/AVC-LongG50/ AVC-LongG25/AVC-LongG12: 24 bit AVC-Intra100/AVC-Intra50: 24 bit/16 bit (selectable) DVCPRO HD/DVCPRO50/DVCPRO/DV: 16 bit
Headroom:	12 dB/18 dB/20 dB (selectable)
De-emphasis:	T1 = 50 µs, T2 = 15 µs (ON/OFF auto)

Video Input

Reference Input:	BNC x 1, Auto switching of black burst/HD 3-value sync
SDI Input:	BNC x 1

Video Output

Monitor Output:	BNC x 1, SD analog composite
Reference through Output:	BNC x 1
SDI Output:	BNC x 2 (HD/SD switchable)
SDI Monitor Output:	BNC x 1 (HD/SD switchable)
HDMI Output*2:	HDMI x 1 (HDMI TypeA terminal), VIERA Link not supported

Audio Input

Analog Input:	XLR x 2 (CH1, CH2)
Digital Input:	BNC x 2 (CH1/2, CH3/4), AES/EBU Format
SDI Input:	BNC x 1

Audio Output

SDI Output:	BNC x 3
Analog Output:	XLR x 2 (CH1, CH2), Monitor Output (L/R) switchable
Digital Output:	BNC x 2 (CH1/2, CH3/4), AES/EBU Format
Headphone Output:	φ3.5 mm Stereo Mini Jack x 1, 8 Ω, variable level
HDMI Output:	2 channels (Linear PCM)
Internal Speaker:	Round x 1 (monaural)

Other Input/Output

Time Code Input:	BNC x 1, 0.5 V [p-p] to 8.0 V [p-p], 10 kΩ
Time Code Output:	BNC x 1, low impedance, 2.0 V [p-p] ±0.5 V [p-p]
REMOTE:	D-SUB 9 pin x 1, RS-422A Interface
PARALLEL REMOTE:	D-SUB 15 pin x 1
LAN:	RJ-45 x 1, 1000BASE-T/100BASE-TX/10BASE-T
USB Host:	USB 3.0 HOST (TYPE A) x 1
USB Device:	USB 2.0 DEVICE (TYPE B) x 1
Keyboard*3:	USB 2.0 (TYPE A) x 1 (maximum 100 mA)

Standard Accessories

AC cable, CD-ROM (Manuals)

*1: To be supported by firmware upgrade. For details, please visit Panasonic website (<http://pro-av.panasonic.net/>).

*2: HDMI output does not support 480/59.94i and 576/50i. Convert to 480/59.94p and 576/50p for output.

*3: This port is intended for keyboard connection. If the keyboard draws more than 100 mA, a protective circuit may shut down the unit.

AG-HPD24

General

Power Source:	7.2 V DC / 7.9 V DC
Power Consumption:	19.8 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Storage Temperature:	-20 °C to 50 °C (-4 °F to 122 °F)
Weight:	Approx. 2 kg (4.41 lb) (without battery) Approx. 2.3 kg (5.07 lb) (with supplied battery)
Dimensions:	214 mm (W) x 88 mm (H) x 200 mm (D) (8-7/16 inches x 3-7/16 inches x 7-7/8 inches) (not including the support legs)
Recording Media:	P2 card
Recording Formats*1:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO50/DVCPRO/DV (selectable)
Video Recording Signals:	1080/59.94i, 1080/50i, 1080/23.98p, 1080/24p, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Audio Recording Signals:	AVC-Intra100/50: 48 kHz, 16 bit, 8 CH/24 bit, 4 CH (selectable) DVCPRO HD: 48 kHz, 16 bit, 8 CH DVCPRO50: 48 kHz, 16 bit, 4 CH DVCPRO/DV: 48 kHz, 16 bit, 2 CH/4 CH selectable

Video Specification (Digital Video)

Sampling Frequencies:	AVC-Intra100/DVCPRO HD (59.94 Hz): Y: 74.1758 MHz, Pb/Pr: 37.0879 MHz AVC-Intra100/DVCPRO HD (50 Hz): Y: 74.2500 MHz, Pb/Pr: 37.1250 MHz DVCPRO50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz DVCPRO: Y: 13.5 MHz, Pb/Pr: 3.375 MHz
Quantization:	AVC-Intra100/AVC-Intra50: 10 bit DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bit
Video Compression Methods:	AVC-Intra100/50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV-based Compression (SMPTE 370M) DVCPRO50/DVCPRO: DV-based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra100: Y: Pb: Pr = 4:2:2
Resolution:	AVC-Intra100: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) AVC-Intra50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)

Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (synchronized with video)
Quantization:	AVC-Intra100/AVC-Intra50: 16 bit/24 bit (selectable) DVCPRO HD/DVCPRO50/DVCPRO/DV: 16 bit
Headroom:	12 dB/18 dB/20 dB (selectable)
De-emphasis:	T1 = 50 µs, T2 = 15 µs (ON/OFF auto)

Video Input

Reference Input:	BNC x 1, Auto switching of black burst/HD tri-level sync
SDI input:	BNC x 1

Video Output

Video Output:	BNC x 1, SD Analog Composite
SDI Output:	BNC x 1, HD SDI/SD SDI switchable
HDMI Output:	HDMI x 1 (HDMI type A), 3D supported (VIERA link not supported) When 59.94 Hz of system frequency 1080/59.94i Frame Packing / Side-by-Side selectable (3D only), 720/59.94p Frame Packing / Side-by-Side selectable (3D only), 1080/59.94i, 720/59.94p, 480/59.94p When 50 Hz of system frequency 1080/50i Frame Packing / Side-by-Side selectable (3D only), 720/50p Frame Packing / Side-by-Side selectable (3D only), 1080/50i, 720/50p, 576/50p When 23.98 Hz of system frequency 1080/23.98p Frame Packing / Side-by-Side selectable (3D only), 1080/23.98p When 24 Hz of system frequency 1080/24p Frame Packing / Side-by-Side selectable (3D only), 1080/24p

Audio Input

Analog Inputs:	XLR x 2 (CH1, CH2)
SDI Input:	BNC x 1

Audio Output

SDI Output:	BNC x 1
Monitor Outputs:	Pin jacks x 2, -10 dBV, 600 Ω
Headphone Output:	Stereo mini jack (3.5 mm dia.), 8 Ω, variable level
HDMI Output:	2 channels (Linear PCM)
Internal Speaker:	Round x 1 (monaural)

Other Input/Output

Time Code Input:	BNC x 1, 0.5 V [p-p] to 8.0 V [p-p], 10 kΩ
Time Code Output:	BNC x 1, low impedance, 2.0 V [p-p] ±0.5 V [p-p]
RS-422A Input/Output:	9 pin D-SUB x 1, RS-422A interface
USB 3.0 (Host):	Type A x 1
USB 2.0 (Device):	Type B x 1
For connection of 3D REC/PB or SYNC PB modes:	9 pin D-SUB x 1, RS-422A interface USB 2.0 Devices (Type A) x 1
Keyboard:	USB 2.0 (Type A) x 1 (maximum 100 mA)

Monitor

LCD Monitor:	87.63 mm (3.45 inches), approx. 921,000 pixels
--------------	--

Included Accessories:

Battery (5400 mAh), Battery charger, AC adaptor, 3D connection label and Software CD-ROM

*1: 3D recording and playback is possible only in the AVC-Intra codec. *2: Multi Media Cards cannot be used.



*The mic shown in the picture is optional.

AVCHD Progressive DOLBY DIGITAL STEREO CREATOR HDMI SD XC SD EG SD

AG-AC160A

1/3-type 3MOS PS/PH Mode 60 Hz/50 Hz
Linear PCM Card slot x 2

A high-end model with Full-HD progressive and slow/quick-motion recording

- 22x zoom lens with O.I.S. (Optical Image Stabilizer) and three manual operation rings – cam-driven zoom, focus and iris.
- Supports AVC progressive recording PS mode.
- 16 bit LPCM 2 channel Digital Audio Recording for high-quality sound.
- VFR (Variable Frame Recording) function provides slow/quick-motion recording (1080 only).
- Records SD video into a DV format file (AVI Type 2).



*The mic shown in the picture is optional.

AVCHD DOLBY DIGITAL STEREO CREATOR HDMI SD XC SD EG SD

AG-AC130A

1/3-type 3MOS PH Mode Card slot x 2

A cost-effective model offering a wide field of view, high sensitivity, and high-quality HD recording

- 22x zoom lens with O.I.S. and three manual rings – cam-driven zoom, focus and iris.
- 1/3-type 2.2 megapixel, high-sensitivity 3MOS (U.L.T. Image Sensors).
- PH mode for Full-HD (1920 x 1080) image recording with a high bit rate of 24 Mbps (average 21 Mbps).
- Records SD video into a DV format file (AVI Type 2). Supports aspect conversion (side crop, letterbox, squeeze).



*The mic. and lens shown in the picture are optional.

MICRO FOUR THIRDS AVCHD Progressive DOLBY DIGITAL STEREO CREATOR HDMI SD XC SD EG SD

AG-AF100A series

(AG-AF100A/101A/102A/104A)

Interchangeable Lens System 4/3-type 1MOS PS/PH Mode
60 Hz/50 Hz Linear PCM Card slot x 2

A Micro Four Thirds mount*1 camera recorder for highly creative motion picture production.

- Seven selectable gamma, including Cine-like mode.
- FILM CAM mode provides VFR and indicates shutter opening angle (deg.) and ISO for movie production.
- VFR function provides slow/quick-motion recording (1080 only).
- Professional system design: detachable handle and grip, sensor marker, and measuring hook.



*The mic shown in the picture is optional.

AVCHD Progressive DOLBY DIGITAL STEREO CREATOR HDMI SD XC SD EG SD

AG-AC90A

1/4.7-type 3MOS PS/PH Mode Card slot x 2

Supports cloud-based workflows and features a wide-angle zoom lens and high-sensitivity 3MOS.

- 12x (Wide; 29.8 mm) zoom lens with 5-Axis Hybrid O.I.S. and three manual rings – zoom, focus, iris.
- 1/4.7-type 2.68 megapixel BSI (Back Side Illumination) 3MOS and 4x dense pixel shifting technology achieve high resolution.
- The use of an Eye-Fi card (commercially available) enables wireless LAN connection and maximizes the use of networks, such as a cloud server.



AVCHD Progressive DOLBY DIGITAL STEREO AUDIO HDMI SD S-VIDEO

AG-HMC80 series

(AG-HMC80/81/82/84)

1/4.1-type 3MOS PH Mode Card slot x 1

DV/AVCHD switchable recording on an SD Memory Card. All with shoulder-mount stability.

- Records SD video into a DV-format file with aspect conversion (side crop, letterbox, squeeze).
- PH (Professional High-quality) mode for Full-HD (1920 x 1080) image recording with a high bit rate of 24 Mbps (average 21 Mbps).
- Down-converted SD video output from HDMI,*2 Component (BNC x 3 (Y, Pb, Pr)) or Video out (BNC).



*Cable in the pictures is optional.

AVCHD Progressive DOLBY DIGITAL STEREO AUDIO HDMI SD S-VIDEO

AG-HMR10

Memory Card Portable Recorder

PH Mode 60 Hz/50 Hz Card slot x 1

Portable HD recorder with HD-SDI input/output, featuring versatile operation.

- Records HD SDI input signals or Full-HD images captured using an optional camera head (AG-HCK10G).
- HD SDI input/output, HDMI output, and USB 2.0 (Type B).
- The palm-size body weighs only approx. 691 g (1.52 lb)*3



AVCHD Progressive DOLBY DIGITAL STEREO AUDIO HDMI SD S-VIDEO

AG-AC8

*This model is not available in some areas.

1/4.5-type 1MOS PS/PH Mode Card slot x 2

Shoulder-mount style AVCCAM for schools, weddings and more.

- 21x zoom lens with 5-Axis Hybrid O.I.S.+ (Optical Image Stabilizer).
- Dual SD card slots achieves relay (auto switch) and simultaneous recording to dual memory cards.
- Level shot function produces highly stable images.
- Ergonomically designed body.

POV CAM

AG-HCK10G

Compact Camera Head for AG-HMR10 (Optional)

High-quality, multi-angle shooting with 3MOS Sensors and Full-HD sampling.

- Enables versatile shooting operation when combined with the AG-HMR10 Memory Card Portable Recorder.

*1: Panasonic does not guarantee the compatibility or performance of all lenses that are mountable on the AG-AF100A Series.

*2: The down-converted signal on HDMI is 480p or 576p only. The AG-HMC80 cannot output HDMI, component and composite signals at the same time.

*3: Including bundled battery.

High-Quality AVCHD Format

High Bit Rate in PH Mode Achieves Pro-use AVCHD Image Quality

The AVCHD format complies with the latest H.264 motion image compression standard, and achieves high image quality and low bit rates. The AVCCAM Series features the image-enhancing PH mode that Panasonic developed exclusively for AVCCAM video production. The PH mode records 1920 x 1080 Full-HD images and supports multiple HD formats, such as 1080/60i, 1080/50i, 1080/30p, 1080/25p, 1080/24p. Some models are also equipped with PS mode for recording Full-HD progressive (1080/60p, 1080/50p) images.

AVCHD Progressive

Large-Capacity SDXC*1/SDHC Memory Card Offers Ease, Efficiency and Reliability

Unlike with videotape, there's no need for cueing with the SDXC*1/SDHC Memory Card because recording automatically begins in a blank section of memory. Nor do you have to worry about accidentally recording over important footage. You can also delete unwanted clips instantly right on the spot to preserve memory capacity. Editing after shooting is smooth and easy, with no need for digitizing.

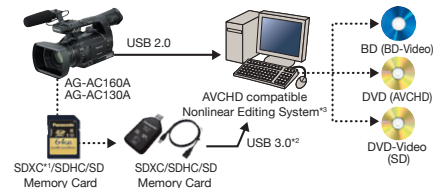
• Large-Capacity SDXC*1 Memory Card

The SDXC Memory Card is a large-capacity data storage device. The memory card features a high capacity of more than 32 GB. The AVCCAM Series can also use the SDHC and SD Memory Cards. The SDXC*1/SDHC/SD Memory Cards are inexpensive and can be easily purchased on location when needed.



Speedy, Efficient Nonlinear Editing and Packaging

Compatibility with existing HD editing environments. AVCHD files can be transferred at high speed by using the USB 3.0 interface to connect via SDXC*1/SDHC/SD Memory Card reader to a Windows PC*2. This dramatically improves productivity when compared with the time-consuming task of digitizing.



Nonlinear Editing Software Compatibility Table

Manufactures	Software
Adobe	Premiere Pro 6
Apple	Final Cut Pro X
	Final Cut Pro 7.0.3
Avid	Media Composer 7
Glass Valley	EDIUS Pro 7

As of December 2014 (based on our investigations*3).

*1: The SDXC Memory Card cannot be used with the AG-HMR10 or the AG-HMC80.

*2: Maximum reading speed with USB 3.0 reader for SDXC, SDHC, SD Memory Cards: 95 MB/s (using UHS-I (Ultra High Speed I) SDHC Memory Card. Speed depends on the hardware specifications of the Windows PC). When the reader connects to a Mac or other device that is not compatible with USB 3.0, its connection is USB 2.0. Connection with a camera recorder is also USB 2.0. Some computers may not recognize the SDXC/SDHC Memory Card. If that occurs, use an SDXC/SDHC Memory Card reader.

*3: Please see the website of the relevant manufacturer.

Recording Mode and Recording Times

Recording Mode	Image Size (H x V)	Bit Rate (Approx.)	SD Memory Card*1 recording time, per sheet							
			64 GB SDXC Memory Card*1			32 GB SDHC Memory Card*1				
			AG-AC160A AG-AC130A	AG-AF100A AG-AC90A	AG-AC8	AG-AC160A AG-AC130A	AG-AF100A AG-AC90A	AG-HMC80	AG-AC8	AG-HMR10*4
PS Mode*2	1920 x 1080	Average 25 Mbps Max 28 Mbps	5 h 20 min*5	5 h 20 min	5 h 20 min	2 h 40 min*5	2 h 40 min	—	2 h 40 min	—
PH Mode*2	1920 x 1080 1280 x 720*3	Average 21 Mbps Max 24 Mbps	6 h	6 h	6 h	3 h	3 h	3 h	3 h	3 h
PM Mode	1280 x 720	Average 8 Mbps	15 h	19 h*7	19 h	7 h 30 min	9 h 20 min*7	—	9 h 20 min	7 h 30 min
HA Mode	1920 x 1080	Average 17 Mbps	8 h	8 h	8 h 30 min	4 h	4 h	4 h	4 h	4 h
HG Mode	1920 x 1080	Average 13 Mbps	—	—	11 h	—	—	5 h 20 min	5 h 20 min	5 h 20 min
HE Mode	1440 x 1080	Average 6 Mbps	24 h	24 h	27 h 30 min	12 h	12 h	12 h	13 h 20 min	12 h
CH Mode*5	1440 x 1080	Average 3.5 Mbps	40 h*5	—	—	20 h*5	—	—	—	—
SA Mode	720 x 480 720 x 576	Average 9 Mbps	—	16 h 30 min*7	16 h 30 min	—	8 h*7	—	8 h	—
CS Mode	720 x 480 720 x 576	Average 3.5 Mbps	—	41 h*7	—	—	20 h	—	—	—
DV Mode*6	720 x 480 720 x 576*5	Average 25 Mbps	4 h 16 min	—	—	2 h 8 min	—	—	—	—

*"h" is an abbreviation for hour and "min" for minute. *These times are approximations.

*1: A Class 6 or higher SDXC/SDHC/SD Memory Card is required for DV recording. A Class 4 or higher SDXC/SDHC/SD Memory Card is required for recording in PH or HA mode. For other recording modes, use a Class 2 or higher SDXC/SDHC/SD Memory Card. (The use of a Panasonic SDXC/SDHC/SD Memory Card is recommended.) The maximum continuous recording time for AVCCAM models is 12 hours (6 hours with AG-AC90A). *2: PH mode is the highest quality in 1080/720p, PS mode is the highest quality in 1080p. *3: Not support AG-AC90A. *4: Only when connected HCK10G. *5: AG-AC160A only. *6: AG-AC160A/AC130A only. *7: AG-AC90A only.

Features of the AVCCAM series Camera Recorder

Dynamic Range Stretch (DRS)

When dark, bright, and intermediate shades are all contained in the same scene, such as when panning from indoors to outdoors, the DRS function automatically suppresses blocked shadows and blown highlights.



*Blown highlights and Blocked shadows are suppressed simultaneously.

7 Mode Gamma for Richer Gradation

Advanced gamma functions address seven different shooting scenarios, including two Cine-Like Gammas, to easily achieve the most suitable image tone.



Variable Frame Rate (VFR)

This creates a wide range of film-camera-like images, such as overcranking for slow-motion and undercranking for quick-motion effects.

Dual Slots Relay and Simultaneous Recording

Dual memory card slots are featured. Relay recording*¹ lets you seamlessly record images onto two memory cards consecutively, and simultaneous recording*² records the same images onto two different memory cards to increase reliability. The slot to be used can be switched during normal recording.

*1: The AVCHD's maximum consecutive recording length is 12 hours. This cannot be extended even by using the relay function.

*2: Simultaneous recording cannot be combined with relay recording, VFR recording or interval recording. Also, Rec Check and Last Clip Delete can not be operated during simultaneous recording.

Versatile Solid-State Recording Functions

- **Interval Rec:** Records one frame at a time in set intervals (1 sec, 10 sec, 30 sec, 1 min, 2 min). Audio recording not possible.
- **Pre-rec:** While in standby mode, the camera recorder can continuously store, and subsequently record, up to approximately 3 seconds. This helps to ensure that you always get the shot you want.
- **Shot mark:** Can be added to each clip during or after recording.
- **Index:** Scenes can be marked with up to 100 index flags per clip.
- **Rec check:** You can check the end of the most recently recorded clip with one-touch ease.
- **Last clip delete:** Only the most recently recorded clip is deleted with one-touch ease.
- **Time stamp:** The date and time can be stamped onto recorded images.

Camera Metadata Recording

Camera settings for recording operation can be saved as metadata in a clip file. By loading a clip file, the saved settings can be immediately applied.

SMPTC Time-Code Recording

The built-in time-code generator provides SMPTE time-code recording. Connecting two cameras allows the slave camera to synchronize with the master camera.

Scene File, Scene File Dial

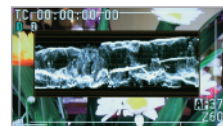
By using preset image quality settings or saving and selecting settings as desired, a film-camera-like tone can quickly be set to suit each shooting situation. It also makes it easy to coordinate the images of several cameras. Some models are equipped with a special Scene File Dial for this purpose.

User Buttons

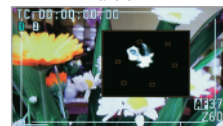
Frequently used functions can be allocated to these buttons for one-touch operation. The number of User buttons and the functions that can be allocated to them vary depending on the model.

Waveform and Vectorscope Display

Simplified waveform and vectorscope display on the LCD monitor and the viewfinder.



Waveform



Vectorscope



Focus Assist

Focus Assist Functions

A variety of focus assist functions support quick and accurate focusing in Manual Focus mode.

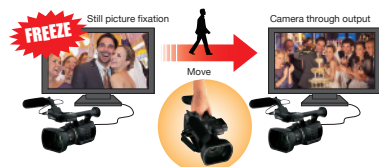
- **Expand:** Enlarging the center portion increases visibility.
- **Focus Bar:** This provides a graphical meter display of the focus level.
- **Focus-in-Red Display:** This function emphasizes the image areas in focus by marking the edges in red.
- **One-Push AF:** Pressing the PUSH AUTO button enables focusing.

Area Functions

You can select a desired area in the frame and set it as a target zone for focusing, iris adjustment and YGET (brightness measurement).

Freeze Frame

When the camera is being set up or the operator changes camera positions, a frame is captured and displayed as a still image. This function allows you to prevent unwanted images from being captured and displayed on an external monitor.



AVCCAM Function Comparison Table

Feature	AG-AC160A	AG-AC130A	AG-AF100A series
Lens System (Angle of view 35 mm equiv.)	Motorized 22x zoom (28 mm to 616 mm)	Motorized 22x zoom (28 mm to 616 mm)	Micro Four Thirds interchangeable lens (option)
Intelligent Zoom	—	—	—
Digital Zoom	2x, 5x, 10x	2x, 5x, 10x	—
Optical Image Stabilizer	✓	✓	—
Manual Rings	3 rings [zoom, focus, iris]	3 rings [zoom, focus, iris]	—
Built-in ND Filters	OFF, 1/4, 1/16, 1/64	OFF, 1/4, 1/16, 1/64	OFF, 1/4, 1/16, 1/64
Image Pick-up Device (MP = Mega-pixels)	1/3 type 2.2 MP, MOS x 3	1/3 type 2.2 MP, MOS x 3	4/3 type 12.4 MP MOS x 1
DRS	✓	✓	✓
Selectable Gamma Modes	7	7	7
Film Cam Mode	—	—	✓
60 Hz*/50 Hz Switchable	✓	—	✓
Full HD Progressive Recording	PS mode	—	PS mode
PH (Pro-High) Mode	✓	✓	✓
720P Recording	PH/PM mode	PH/PM mode	PH mode
SD (Std-Def) Recording	DV (AVI Type II)	DV (AVI Type II)	—
16 bit LPCM Recording	✓	—	✓
VFR	✓	—	✓
SD Card Compatibility	SDXC/SDHC/SD	SDXC/SDHC/SD	SDXC/SDHC/SD
Card Slot	2	2	2
Relay Recording	✓	✓	✓
Simultaneous Recording	✓	✓	—
Interval Rec	✓	✓	✓
Pre-Rec (3 sec)	✓	✓	✓
Shot Mark (OK/NG)	✓	✓	✓
Index (up to 100/Clip)	✓	✓	✓
Meta-Data Recording	✓	✓	✓
Time Stamp Recording	✓	✓	—
Time-Code Generator/Reader	✓	✓	✓
Synchro Function with TC Preset In/Out (Video Out)	✓	✓	✓
Scene File Dial	6 position dial	6 position dial	(6 scene files)
User Buttons	3	3	3
Built-in Monitor	3.45 type LCD (921K dots)	3.45 type LCD (921K dots)	3.45 type LCD (921K dots)
EVF	0.45 type LCOS (1,226K dot equiv.)	0.45 type LCOS (1,226K dot equiv.)	0.45 type LCOS (1,226K dot equiv.)
Waveform Display	✓	✓	✓
Vectorscope Display	✓	✓	✓
Focus Assist	Focus Bar, Focus-In-Red, Expand, Push Auto	Focus Bar, Focus-In-Red, Expand, Push Auto	Focus Bar, Focus-In-Red, Expand, Push Auto
Face Detection	✓	✓	✓
Area Focusing and Area Iris	✓	✓	Compatible lens only
Freeze Frame	—	—	—
Built-in Microphone	Stereo	Stereo	Stereo
XLR AUDIO IN	✓	✓	✓
SDI IN	—	—	—
SDI OUT	✓	—	✓
IEEE1394 (DV Terminal)	✓	✓	—
HDMI OUT	✓	✓	✓
USB 2.0	✓	✓	✓
Analog Video Outputs	✓	✓	✓
Down Converter (Aspect Conversion Mode)	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze
Wired Remote Control Terminals	Zoom, Rec-S/S, Focus, Iris, Index	Zoom, Rec-S/S, Focus, Iris, Index	Zoom, Rec-S/S, Focus, Iris, Index
Wireless Remote Controller	✓	✓	✓
Eye-Fi Function	✓	—	—

	AG-AC90A	AG-HMC80 series	AG-AC8	AG-HMR10 AG-HCK10G
	Motorized 12x zoom (29.8 mm to 383.7 mm)	Motorized 12x zoom (40.8 mm to 490 mm)	Motorized 21x zoom (28 mm to 729.6 mm)	Motorized 12x zoom (40.8 mm to 490 mm)
	Up-to 25x	—	Up-to 50x	—
	2x, 5x, 10x	2x, 5x, 10x	60x, 1500x	2x, 5x, 10x (AG-HCK10G)
	5 axis Hybrid	—	5 axis, Hybrid	(AG-HCK10G)
	3 rings [zoom, focus, iris]	1 ring [focus/iris]	1 ring [zoom/focus/iris/WB/shutter]	—
	—	—	—	—
	1/4.7 type 2.68 MP BSI MOS x 3	1/4.1 type 3.05 MP MOS x 3	1/4.5 type MOS x 1	1/4.1 type 3.05 MP MOS x 3 (AG-HCK10G)
	✓	✓	✓	(AG-HCK10G)
	7	7	—	7 (AG-HCK10G)
	—	—	—	—
	—	—	—	✓
	PS mode	—	PS mode	—
	✓	✓	✓	✓
	—	PH/PM mode	PM mode	PH/PM mode
	SA/CS mode (AVCHD)	DV (AVI Type II)	SA mode (AVCHD)	—
	—	—	—	—
	—	—	—	—
	SDXC/SDHC/SD	SDHC/SD	SDXC/SDHC/SD	SDHC/SD
	2	1	2	1
	Auto Switch Rec.	—	Auto Switch Rec.	—
	✓	—	✓	—
	✓	✓	✓	—
	✓	✓	✓	✓
	—	—	—	✓
	—	—	—	✓
	—	✓	—	✓
	✓	✓	✓	✓
	✓	✓	—	✓
	—	—	—	—
	(6 scene files)	(2 scene files)	—	—
	7	3	4	3
	Slide-retractable 3.5 type LCD with Touch Panel (1,152K dots)	2.7 type LCD/EVF (230KP = 690K dot equiv.)	3.0 type LCD with Touch Panel (460K dots)	3.5 type LCD (210KP = 630K dot equiv.)
	0.24 type LCOS (263K dot equiv.)	—	0.24 type LCOS (263K dot equiv.)	—
	—	✓	—	✓
	—	—	—	✓
	Focus-In-Red, Push Auto (User Buttons)	Focus Bar, Center Zoom, Push Auto	Focus-In-Red, Push Auto (User Buttons)	Focus Bar, Center Zoom, Push Auto (AG-HCK10G)
	(iA)	✓	—	—
	—	—	—	—
	✓	—	—	—
	5.1 CH/Stereo	Stereo	Stereo	Stereo (AG-HCK10G)
	✓	✓	—	—
	—	—	—	✓
	—	—	—	✓
	—	✓	—	—
	✓	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	✓
	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze	Side Crop, Letterbox, Squeeze
	Zoom, Rec-S/S, Focus, Iris	Zoom, Rec-S/S, Focus, Iris	—	Zoom, Rec-S/S
	✓	✓	—	✓
	✓	—	✓	—

Product name		AG-AC160A AG-AC130A	AG-AF100A series	AG-AC90A	AG-HMC80 series	AG-AC8	AG-HMR10 AG-HCK10G
Battery Pack	VW-VBG260				✓		✓
Battery Pack	VW-VBG6	✓	✓		✓		
Battery Pack	CGA-D54			✓	✓	✓	
Battery Pack	VW-VB58					✓	
Battery Charger	AG-B23			✓	✓		
Wide Conversion Lens	VW-W4307H				✓		✓
Wide Conversion Lens	VW-W4907H			✓		✓	
Tele Conversion Lens	VW-T4314H				✓		✓
Filter Kit	VW-LF49N			✓		✓	
XLR Microphone	AG-MC200G	✓	✓	✓	✓		
Stereo Microphone	VW-VMS10					✓	
SDXC Memory Card		✓	✓	✓		✓	
SDHC/SD Memory Card		✓	✓	✓	✓	✓	✓
Camera Head Option Cable	AG-C20003G AG-C20020G						✓
Upgrade Software	AG-SFU100		*				
Upgrade Software Key	AG-SFU160G	✓*1					
LED Video Light	VW-LED1					✓	
Micro Four Thirds Lens and Lens Mount Adaptor			✓				

*Upgrade software for AG-AF100 series. It is not available for AG-AF100A series. *1: AG-AC160A only.



VW-VBG260

Battery Pack
• 7.2 V 2,640 mAh/
2,500 mAh (typ./min.)



VW-VBG6

Battery Pack
• 7.2 V 5,800 mAh/
5,400 mAh (typ./min.)



CGA-D54

Battery Pack
• 7.2 V 5,400 mAh



VW-VB58

Battery Pack
• 7.2 V 5,800 mAh



AG-B23

Battery Charger



VW-W4307H

Wide Conversion Lens



VW-W4907H-K

Wide Conversion Lens



VW-T4314H

Tele Conversion Lens



VW-LF49N-K

Filter Kit



AG-MC200G

XLR Microphone



VW-VMS10

Stereo Microphone



SDXC/SDHC/SD
Memory Cards

AG-SFU100
Upgrade software
for AG-AF100 series

*AG-SFU100 is a chargeable option.

AG-SFU160G
Upgrade Software Key
This upgrade key activates the
following functions and enables a
convenient workflow with Eye-Fi for
AG-AC160A.



VW-LED1
LED Video Light



AG-C20003G (3m)
AG-C20020G (20m)
Camera Head Option Cable

AVCCAM Specifications

AG-AC160A

General

Power Supply:	DC 7.2 V (when the battery is used) DC 7.3 V (when the AC adaptor is used)
Power Consumption:	11.8 W (recording)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 2.4 kg (5.3 lb) (excluding the battery and accessories)
Dimensions:	180 mm (W) x 195 mm (H) x 438 mm (D) (7 inches x 7-11/16 inches x 17-1/4 inches) (excluding protruding parts)

Camera

Pickup Devices:	1/3-type progressive, 2.2 megapixel, 3MOS sensors
Lens:	Optical image stabilizer lens, 22x motorized zoom, F1.6 to 3.2 (f=3.9 mm to 86 mm) 35 mm conversion: 28 mm to 616 mm (16:9)
Filter Diameter:	72 mm
Optical System:	Prism color separation
ND Filter:	OFF, 1/4, 1/16, 1/64
Minimum Shooting Distance:	Approx. 1 m (39-3/8 inches)
Gain Settings:	0/3/6/9/12/15/18/24/30* dB *Assigned to the USER button (S.GAIN)
Color Temperature Settings:	ATW, ATW LOCK, preset 3200 K, preset 5600 K, preset VAR, Ach, Bch
Digital Zoom:	2x/5x/10x, assigned to the USER button
Minimum Illumination:	0.4 lx (F1.6, gain +30 dB, shutter speed 1/30 seconds)
Shutter Speed: (Preset)	[59.94 Hz*] 60i/60p mode: 1/60 sec. to 1/2000 sec. (7 steps) 30p mode: 1/30 sec. to 1/2000 sec. (8 steps) 24p mode: 1/24 sec. to 1/2000 sec. (8 steps) [50 Hz] 50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps) 25p mode: 1/25 sec. to 1/2000 sec. (8 steps)
Shutter Speed: (Synchro Scan)	[59.94 Hz*] 60i/60p mode: 1/60.0 sec. to 1/249.8 sec. 30p mode: 1/30.0 sec. to 1/249.8 sec. 24p mode: 1/24.0 sec. to 1/249.8 sec. Opening Angle: 3.0 d – 180.0 d – 360.0 d, 0.5 degrees step [50 Hz] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec. Opening Angle: 3.0 d – 180.0 d – 360.0 d, 0.5 degrees step
Shutter Speed: (Slow)	[59.94 Hz*] 60i/60p mode: 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/8 sec., 1/15 sec. 24p mode: 1/6 sec., 1/12 sec. [50 Hz] 50i/50p mode: 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/6 sec., 1/12 sec. *Only when the VFR MODE is OFF in the SCENE FILE screen

Memory Card Recorder

Recording Format:	AVCHD Ver. 2.0 standard (AVCHD Progressive) DV standard (AVI Type2)
Recording Media:	SD memory card (FAT12, FAT16): 512 MB, 1 GB, up to 2 GB SDHC memory card (FAT32): 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 32 GB SDXC memory card (exFAT): 48 GB, 64 GB, up to 2 TB *However, memory cards above Class 4 are supported in PH/HA mode, memory cards above Class 2 are supported in PM/HE/CH mode, and memory cards above Class 6 are supported in PS mode, during VFR recording and DV mode.

Video/Audio Recording Specification (AVCHD)

Recording Video Signals:	[59.94 Hz] PS mode: 1080/59.94p*1 PH mode: 1080/59.94i*1, 1080/29.97p*1, 1080/23.98pN*2, 720/59.94p*1, 720/29.97p*1, 720/23.98pN*2 PM mode: 720/59.94p*1 HA/HE/CH mode: 1080/59.94i*1
--------------------------	---

Recording Video Signals:

	[50 Hz] PS mode: 1080/50p, PH mode: 1080/50i, 1080/25p, 720/50p, 720/25p PM mode: 720/50p, HA/HE/CH mode: 1080/50i
Interval Recording:	OFF/1 sec./10 sec./30 sec./1 min./2 min. interval, maximum 168 hours (1 week) recording *For the recording mode, PH 1080/24p or PH 1080/25p fixed
Variable Frame Rate:	1080/24p, 1080/30p: 2*/6/9/12/15/18/20/21/22/24/25/26/27/28/30/32/ 34/36/40/44/48/54/60 fps (frames per second) 1080/25p: 2*/6/9/12/15/18/20/21/22/23/24/25/ 26/27/28/30/32/34/37/42/45/48/50 fps (frames per second) * Fixed on 0 dB gain and manual focus mode
Audio Recording Signal:	48 kHz/16 bit
Digital Audio Format:	PS/PH mode: Linear PCM 2 CH/Dolby Digital 2 CH, switchable PM/HA/HE/CH mode: Dolby Digital, 2 CH
Audio Bit Rate:	PS/PH mode: 384 kbps PM/HA/HE/CH mode: 256 kbps

DV Recording Specification

Recording Video Signals:	[59.94 Hz*] 480/59.94i*1, 480/29.97p*1, 480/23.98p*1 [50 Hz] 576/50i, 576/25p
Audio Recording Signal:	48 kHz/16 bit, Linear PCM (digital 2 ch)
Video Output	
SDI OUT:	BNC x 1, 0.8 V [p-p], 75 Ω, HD (AVCHD mode only)/SD switchable
HDMI OUT (AVCHD mode only):	HDMI Type A, VIERA Link not supported
VIDEO OUT:	Pin jack, 1.0 V [p-p], 75 Ω

Audio Input/Output

Built-in Microphone:	Stereo microphone
XLR IN:	XLR (3 pin) x 2 (INPUT1, INPUT2), LINE/MIC/+48 V switchable, high impedance LINE: 0 dBu, MIC: -40 dBu/-50 dBu/-60 dBu (menu)
Audio OUT:	Pin jack x 2 (CH1, CH2), 600 Ω, 316 mV
SDI OUT:	2 CH (Linear PCM)
HDMI OUT (AVCHD mode only):	2 CH (Linear PCM), 5.1 CH (Dolby Digital)
Headphones:	3.5 mm diameter, stereo mini jack x 1
Speaker:	Round, 20 mm diameter

Other Input/Output

Camera Remote:	2.5 mm diameter, super mini jack x 1 (ZOOM S/S) 3.5 mm diameter, mini jack x 1 (FOCUS/IRIS)
INDEX Remote:	2.5 mm diameter, super mini jack x 1
TC PRESET IN/OUT:	VIDEO OUT terminal dual-purpose IN 1.0 V [p-p] – 4.0 V [p-p], 10 kΩ OUT: 2.0 V [p-p] ±0.5 V [p-p], low impedance
USB2.0:	Type mini B connector (USB2.0 compliant)
DV OUT (DV mode only):	6 pin (IEEE1394 compliant), digital output only

Monitor

LCD Monitor:	87.63 mm (3.45 inches) color LCD monitor, approx. 921,000 dots (16:9)
EVF:	11.43 mm (0.45 inches) color LCD monitor, approx. 1,226,000 dots (16:9)

Included Accessories

AC adaptor*3, Battery charger*3, AC cable, DC cable,
5800/5400 (typ./min.) mAh battery pack,
Wireless remote controller with button-type battery,
Microphone holder, Eye cup, Shoulder strap, CD-ROM

*1: The frame rates in the setup menu are 60p, 60i, 30p, and 24p.

*2: Native recording mode.

*3: Only AG-AC160AEJ include AC adaptor and Battery charger separately.
The AC adaptor of AG-AC160AP/EN/AN has both AC adaptor and Battery
charger functions.

AG-AC130A

General

Power Supply: DC 7.2 V (when the battery is used)
DC 7.3 V (when the AC adaptor is used)

Power Consumption: 11.6 W (recording)

Operating Temperature: 0 °C to 40 °C (32 °F to 104 °F)

Operating Humidity: 10 % to 80 % (no condensation)

Weight: Approx. 2.4 kg (5.3 lb)
(excluding the battery and accessories)

Dimensions: 180 mm (W) x 195 mm (H) x 438 mm (D)
(7 inches x 7-11/16 inches x 17-1/4 inches)
(excluding protruding parts)

Camera

Pickup Devices: 1/3-type progressive, 2.2 megapixel,
3MOS sensors

Lens: Optical image stabilizer lens, 22x motorized zoom,
F1.6 to 3.2 (f=3.9 mm to 86 mm)
35 mm conversion: 28 mm to 616 mm (16:9)

Filter Diameter: 72 mm

Optical System: Prism color separation

ND Filter: OFF, 1/4, 1/16, 1/64

Minimum Shooting Distance:
Approx. 1 m (39-3/8 inches)

Gain Settings: 0/3/6/9/12/15/18/24*/30* dB
*Assigned to the USER button (S.GAIN)

Digital Zoom: 2x/5x/10x, assigned to the USER button

Minimum Illumination:
[50.94 Hz model]
0.4 lx
(F1.6, gain +30 dB, shutter speed 1/30 seconds)
[50 Hz model]
0.3 lx
(F1.6, gain +30 dB, shutter speed 1/25 seconds)

Shutter Speed: [59.94 Hz*1 model]
(Preset) 60i/60p mode: 1/60 sec. to 1/2000 sec. (7 steps)
30p mode: 1/30 sec. to 1/2000 sec. (8 steps)
24p mode: 1/24 sec. to 1/2000 sec. (8 steps)
[50 Hz model]
50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps)
25p mode: 1/25 sec. to 1/2000 sec. (8 steps)

Shutter Speed: [59.94 Hz*1 model]
(Synchro Scan) 60i/60p mode: 1/60.0 sec. to 1/249.8 sec.
30p mode: 1/30.0 sec. to 1/249.8 sec.
24p mode: 1/24.0 sec. to 1/249.8 sec.
Opening Angle:
3.0 d – 180.0 d – 360.0 d, 0.5 degrees step
[50 Hz model]
50i/50p mode: 1/50.0 sec. to 1/250.0 sec.
25p mode: 1/25.0 sec. to 1/250.0 sec.
Opening Angle:
3.0 d – 180.0 d – 360.0 d, 0.5 degrees step

Shutter Speed: [59.94 Hz*1 model]
(Slow) 60i/60p mode: 1/8 sec., 1/15 sec., 1/30 sec.
30p mode: 1/8 sec., 1/15 sec.
24p mode: 1/6 sec., 1/12 sec.
[50 Hz model]
50i/50p mode: 1/6 sec., 1/12 sec., 1/25 sec.
25p mode: 1/6 sec., 1/12 sec.

Memory Card Recorder

Recording Format: AVCHD standard (MPEG-4 AVC/H.264)
DV standard (AVI Type2)

Recording Media: SD memory card (FAT12, FAT16):
512 MB, 1 GB, up to 2 GB
SDHC memory card (FAT32):
4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 32 GB
SDXC memory card (exFAT):
48 GB, 64 GB, up to 2 TB

*However, memory cards above Class 4 is supported in PH/HA mode, memory cards above Class 2 is supported in PM/HE mode, and memory cards above Class 6 is supported for DV mode.

Video/Audio Recording Specification (AVCHD)

Recording Video Signals:
[59.94 Hz*1 model]
PH mode:
1080/59.94i*1, 1080/29.97p*1, 1080/23.98pN*1*2,
720/59.94p*1, 720/29.97p*1, 720/23.98pN*1*2
PM mode: 720/59.94p*1
HA/HE mode: 1080/59.94i*1
[50 Hz model]
PH mode: 1080/50i, 1080/25p, 720/50p, 720/25p
PM mode: 720/50p
HA/HE mode: 1080/50i

Interval Recording: OFF/1 sec./10 sec./30 sec./1 min./2 min. interval,
maximum 168 hours (1 week) recording
*For the recording mode, PH 1080/24p (59.94 Hz
model), or PH 1080/25p (50 Hz model) fixed.

Audio Recording Signal:
48 kHz/16 bit

Digital Audio Format: Dolby Digital, 2 CH

Audio Bit Rate: PH mode: 384 kbps
PM/HA/HE mode: 256 kbps

DV Recording Specification

Recording Video Signals:
[59.94 Hz*1 model]
480/59.94i*1, 480/29.97p*1, 480/23.98p*1
[50 Hz model]
576/50i, 576/25p

Audio Recording Signal:
48 kHz/16 bit, Linear PCM (digital 2 CH)

Video Output

HDMI OUT (AVCHD mode only):
HDMI Type A, VIERA Link not supported
VIDEO OUT: Pin jack, 1.0 V [p-p], 75 Ω

Audio Input/Output

Built-in Microphone: Stereo microphone
XLR IN: XLR (3 pin) x 2 (INPUT1, INPUT2),
LINE/MIC/+48 V switchable, high impedance
LINE: 0 dBu
MIC: -40 dBu/-50 dBu/-60 dBu (menu selectable)

HDMI OUT (AVCHD mode only):
2 CH (Linear PCM), 5.1 CH (Dolby Digital)

Headphones: 3.5 mm diameter, stereo mini jack x 1

Speaker: Round, 20 mm diameter

Other Input/Output

Camera Remote: 2.5 mm diameter, super mini jack x 1 (ZOOM S/S)
3.5 mm diameter, mini jack x 1 (FOCUS/IRIS)

INDEX Remote: 2.5 mm diameter, super mini jack x 1

TC PRESET IN/OUT: VIDEO OUT terminal dual-purpose
IN: 1.0 V [p-p] – 4.0 V [p-p], 10 kΩ
OUT: 2.0 V [p-p] ±0.5 V [p-p], low impedance

USB 2.0: Type mini B connector (USB 2.0 compliant)

DV OUT (DV mode only):
6 pin (IEEE1394 compliant), digital output only

Monitor

LCD Monitor: 87.63 mm (3.45 inches) color LCD monitor,
approx. 921,000 dots (16:9)

EVF: 11.43 mm (0.45 inches) color LCD monitor,
approx. 1,226,000 dots (16:9)

Included Accessories

AC adaptor*3, Battery charger*3, AC cable, DC cable,
5800/5400 (typ./min.) mAh battery pack,
Wireless remote controller with button-type battery,
Microphone holder, Eye cup, Shoulder strap, CD-ROM

*1: The frame rates in the setup menu are 60p, 60i, 30p, and 24p.

*2: Native recording mode.

*3: Only AG-AC130AEJ include AC adaptor and Battery charger separately.
The AC adaptor of AG-AC130AP/EN has both AC adaptor and Battery
charger functions.

AG-AF100A series

General

Power Supply:	DC 7.2 V (when the battery is used) DC 7.3 V (when the AC adaptor is used)
Power Consumption:	12.4 W (when recording)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (No condensation)
Weight:	Approx. 1.3 kg (2.9 lb.) (excluding the handle, grip, battery and accessories)
Dimensions:	163.4 mm (W) x 195 mm (H) x 290.4 mm (D) (6-7/16 inches x 7-11/16 inches x 11-7/16 inches) (Including the handle and grip)

Camera

Pickup Device:	4/3 MOS fixed pickup device, single panel (primary color filter)
Picture Elements:	Effective picture elements: Approx. 12,400,000 pixels Single panel (16:9)
Image Size:	Valid image range: Approx. 17.8 mm (H) x Approx. 10.0 mm (V)
Lens:	Not included
Lens Mount:	Micro Four Thirds system Lens mount
ND Filter:	Clear, 1/4, 1/16, 1/64
Gain Settings:	[VIDEO CAM mode] -6 dB to 18 dB (3 dB step) [FILM CAM mode] ISO200 to ISO3200
Color Temperature settings:	ATW, ATW LOCK, preset 3200 K, preset 5600 K, preset VAR, A CH, B CH
Shutter Speed: (Preset)	[59.94 Hz] 60i/p mode: 1/60 sec. to 1/2000 sec. (6 steps) 30p mode: 1/30 sec. to 1/2000 sec. (8 steps) 24p mode: 1/24 sec. to 1/2000 sec. (8 steps) [50 Hz] 50i/p mode: 1/50 sec. to 1/2000 sec. (7 steps) 25p mode: 1/25 sec. to 1/2000 sec. (8 steps)
Shutter Speed: (Syncro Scan)	[59.94 Hz] 60i/p mode: 1/60.0 sec. to 1/250.6 sec. 30p mode: 1/30.0 sec. to 1/250.6 sec. 24p mode: 1/24.0 sec. to 1/250.6 sec. [50 Hz] 50i/p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec. [FILM CAM mode] 10.0 d to 180.0 d to 360.0 d (0.5 d step)
Shutter Speed (VIDEO CAM mode only): (Slow)	[59.94 Hz] 60i/p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 24p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. [50 Hz] 50i/p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec.
Normal Sensitivity:	F8.0 normal (2000 lx, 3200 K, 89.9 % reflex, 1080 59.94i)
Horizontal Resolution:	800 TV lines (at center standard)

Video/Recording/Playback

Recording Format:	AVCHD ver. 2.0 (MPEG-4 AVC/H.264/AVCHD Progressive)
Recording Media:	SD memory card (FAT12, FAT16): 512 MB, 1 GB, up to 2 GB SDHC Memory Card (FAT32): 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 32 GB SDXC memory card (exFAT): 48 GB, 64 GB *However, above Class4 is supported in PH and HA modes, and above Class6 is supported at VFR recording and in PS mode.
Recording Format:	[59.94 Hz] PS mode: 1080/59.94p, PH mode: 1080/59.94i, 1080/29.97p, 1080/23.98p, 720/59.94p, 720/29.97p, 720/23.98p HA/HE mode: 1080/59.94i [50 Hz] PS mode: 1080/50p, PH mode: 1080/50i, 1080/25p, 720/50p, 720/25p HA/HE mode: 1080/50i

Recording Time:	Approx. 12 hours (PH mode 1920 x 1080 or 1280 x 720 with two 64 GB SDXC memory cards)
Interval Recording:	OFF/1 sec./10 sec./30 sec./1 min./2 min. * Recording mode is fixed to PH 1080/24p (59.94 Hz) and PH 1080/25p (50 Hz) and the maximum shooting time is 24 hours.
VFR Recording:	1080/24p, 30p: 12/15/18/20/21/22/24/25/26/ 27/28/30/32/34/36/40/44/48/54/60 frame/sec. 1080/25p: 12/15/18/20/21/22/23/24/25/26/ 27/28/30/32/34/37/42/45/48/50 frame/sec.

Video Output

SDI (HD/SD):	BNC x 1, 0.8 V [p-p], 75 Ω [59.94 Hz] 1080/60i, 1080/24PsF, 720/60p, 480/60i [50 Hz] 1080/50i, 720/50p, 576/50i
HDMI:	HDMI x 1, (HDMI TypeA terminal), VIERA Link not supported [59.94 Hz] 1080/60p, 1080/60i, 720/60p, 480/60p [50 Hz] 1080/50p, 1080/50i, 720/50p, 576/50p
VIDEO:	RCA pin jack, 1.0 V [p-p], 75 Ω [59.94 Hz] 480/60i [50 Hz] 576/50i

Audio Recording playback

Recording Format:	PS/PH mode: Dolby Digital/2 CH, Linear PCM digital/2 CH switch HA/HE mode: Dolby Digital/2 CH
Sampling Frequency:	48 kHz
Encoding:	16 bit
Compressed Bit Rate:	Dolby Digital: PS/PH mode: 384 kbps, HA/HE mode: 256 kbps

Audio Input/Output

Built-in Microphone:	Stereo microphone
Audio IN:	XLR (3 pin) x 2 (INPUT 1, INPUT 2), LINE/MIC selectable, high impedance LINE: 0 dBu MIC: -50 dBu/-60 dBu (menu selectable)
Audio OUT:	RCA pin jack x 2 (CH1, CH2), 316 mV, 600 Ω
SDI OUT:	2 CH (Linear PCM)
HDMI OUT:	2 CH (Linear PCM)/5.1 CH (Dolby Digital)
Headphone:	3.5 mm diameter, stereo mini jack x 1
Speaker:	20 mm (round) x 1

Other Connectors

Camera Remote:	Super mini jack (2.5 mm diameter) (S/S) Mini jack (3.5 mm diameter) (FOCUS, IRIS)
INDEX Remote:	Super mini jack (2.5 mm diameter)
TC PRESET IN/OUT (also used for VIDEO OUT):	IN: 1.0 V [p-p] - 4.0 V [p-p], 10 kΩ OUT: 2.0 V [p-p] ±0.5 V [p-p], low impedance
USB:	Card reader function (no copyright protection support) Type mini B connector (compliant with USB ver. 2.0)

Monitor

LCD Monitor:	87.63 mm (3.45 inches) wide LCD color monitor, approx. 920,000 dots
Viewfinder	11.43 mm (0.45 inches) wide LCD color monitor, approx. 1,226,000 dots equivalent

Included Accessories

Battery, AC adaptor/Battery charger, AC power supply cable/DC cable,
Wireless remote control and battery, Eye cup, Microphone holder,
Microphone holder screws, Microphone holder adaptor,
Cable clamper, Screws for cable clamper, Manuals, CD-ROM

AG-AC90A

General

Power Supply:	DC 12 V (when the AC adaptor is used) DC 7.2 V (when the battery is used)
Power Consumption:	12.9 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 1.50 kg (Approx. 3.3 lb) (main unit only) Approx. 1.78 kg (Approx. 3.9 lb) (with battery and an SD memory card)
Dimensions:	160 mm (W) x 195 mm (H) x 350 mm (D) (6-5/16 inches x 7-11/16 inches x 13-1/16 inches) (excluding protruding parts)

Camera

Pickup Devices:	1/4.7-type 3MOS image sensor Effective pixels: Approx. 8,040 K (Approx. 2,680 K x 3)
Lens:	Auto Iris optical zoom (Full range AF) F value (focal length): F1.5 to F2.8 (Focal length: 2.84 mm to 34.1 mm) 35 mm equivalent: Motion picture/Still picture; 29.8 mm to 383.7 mm (16:9) Minimum focus distance: Approx. 3.5 cm (Approx. 1.4 inches) (Wide) Approx. 1.2 m (Approx. 3.9 feet) (Tele)
Filter Diameter:	49 mm
Zoom:	12x optical zoom, 25x i.Zoom, 2x/5x/10x, digital zoom
Shutter Speed (at motion picture recording, manual mode):	[59.94 Hz model] 60i/60p/30p: 1/30 sec. to 1/2000 sec. (auto slow shutter ON) 1/60 sec. to 1/2000 sec. (auto slow shutter OFF) 24p: 1/24 sec. to 1/2000 sec. (auto slow shutter ON) 1/50 sec. to 1/2000 sec. (auto slow shutter OFF) [50 Hz model] 50i/50p/25p: 1/25 sec. to 1/2000 sec. (auto slow shutter ON) 1/50 sec. to 1/2000 sec. (auto slow shutter OFF)
Image Stabilizer Function:	Optical (hybrid optical image stabilizer, active mode)
Minimum Illumination:	Approx. 3 lx (iA mode, 1/30 sec. (59.94 Hz model)/ 1/25 sec. (50 Hz model) shutter speed with auto slow shutter ON)

Memory Card Recorder

Recording Format:	AVCHD version 2.0 compliant, AVCHD Progressive
Motion Picture Compression:	MPEG-4 AVC/H.264
Audio Compression:	Dolby Digital (5.1 CH/2 CH)
Recording Mode:	[59.94 Hz model] PS mode: 1080/60p PH mode: 1080/60i, 1080/30p, 1080/24p HA mode: 1080/60i HE mode: 1080/60i PM mode: 720/60p SA mode: 480/60i CS mode: 480/60i [50 Hz model] PS mode: 1080/50p PH mode: 1080/50i, 1080/25p HA mode: 1080/50i HE mode: 1080/50i PM mode: 720/50p SA mode: 576/50i CS mode: 576/50i

Still Picture Recording Format:	JPEG corresponding (Design rule for Camera File system, based on Exif 2.2 standard)
Recording Media:	SD memory card, SDHC memory card, SDXC memory card

Video Output

AV Multi OUT:	Component video output level: Y: 1.0 V [p-p], 75 Ω Pb: 0.7 V [p-p], 75 Ω Pr: 0.7 V [p-p], 75 Ω AV video output level: 1.0 V [p-p], 75 Ω
HDMI OUT:	1080p/1080i/720p/576p

Audio Input/Output

LINE:	2 CH (AV Multi terminal)
XLR IN:	XLR (3 pin) x 2 (INPUT1/INPUT2), LINE: 0 dBu MIC: -50 dBu/-60 dBu (switch with the menu)
HDMI OUT:	Dolby Digital/Linear PCM
Headphones OUT:	3.5 mm stereo mini jack
Microphone:	5.1 CH surround microphone (with zoom/focus microphone function)/ stereo microphone

Other Input/Output

USB:	Reader function (No copyright protection support) Hi-Speed USB (USB 2.0), USB terminal Type Mini B
Camera Remote:	2.5 mm diameter, super mini jack x 1 (ZOOM, REC S/S) 3.5 mm diameter, mini jack x 1 (FOCUS, IRIS)

Monitor

Monitor:	88.9 mm (3.5 inches) wide LCD monitor, approx. 1,152,000 dots
Viewfinder:	6.1 mm (0.24 inches) wide EVF, approx. 263,000 dots (Included Accessories)

Included Accessories

Battery pack, Battery charger, AC adaptor, AC cable (x 2), Eye cup, Remote control (Battery built-in), CD-ROM (Operating Instructions), USB cable, AV multi cable, Lens cap, Shoulder strap, Microphone holder, INPUT terminal cap (2 caps), Microphone holder adaptor, Microphone holder screws

AG-HMC80 series

General

Power Supply:	DC 7.2 V (when the battery is used) 7.3 V (when the AC adaptor is used)
Power Consumption:	11 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 3.2 kg (Approx. 7.06 lb) (main unit only) Approx. 3.3 kg (Approx. 7.28 lb) (with battery and an SD memory card)
Dimensions:	267 mm (W) x 233 mm (H) x 458 mm (D) (10-1/2 inches x 9-3/16 inches x 18-5/16 inches) (excluding protruding parts)

Camera

Pickup Devices:	3MOS (1/4.1-type progressive modes supported)
Effective Pixels:	Total: Approx. 3.05 megapixels x 3 Effective: Approx. 2.51 megapixels x 3 (16:9)
Lens:	Lens with optical image stabilizer, motorized/manual mode switching, 12x zoom, F1.8 to F2.8 (f=4.0 mm to 48 mm) 35 mm equivalent (Video): 40 mm to 490 mm (16:9) 35 mm equivalent (still image): 41.3 mm to 496 mm (3:2), 40.8 mm to 496 mm (16:9), 45.0 mm to 540 mm (4:3)
Filter Diameter:	43 mm
Optical Color Separation:	Prism system
ND Filter:	Automatic On/Off interlock with Iris
Minimum shooting distance:	Approx. 0.9 m (Approx. 35.43 inches)
Gain Selection:	0 dB to 24 dB (Variable in 1 dB step; USER button allocation; up to 34 dB using the High Gain setting)
White balance:	ATW, ATW LOCK, preset 3200 K, preset 5600 K, A CH or B CH
Shutter Speed: (Preset)	[59.94 Hz model] <Motion Image> 60i/60p mode: 1/60 sec. to 1/2000 sec. (7 steps) 30p mode: 1/30 sec. to 1/2000 sec. (8 steps) 24p mode: 1/24 sec. to 1/2000 sec. (8 steps) [50 Hz model] <Motion Image> 50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps) 25p mode: 1/25 sec. to 1/2000 sec. (8 steps)
Shutter Speed: (Synchro Scan)	[59.94 Hz model] 60i/60p mode: 1/60.0 sec. to 1/250.0 sec. 30p mode: 1/30.0 sec. to 1/250.0 sec. 24p mode: 1/24.0 sec. to 1/250.0 sec. [50 Hz model] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	[59.94 Hz model] 60i/60p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 24p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. [50 Hz model] 50i/50p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec.
Minimum Luminance:	Approx. 1 lx (Gain: 34 dB, Slow Shutter: 1/2 sec.)
Digital Zoom:	2x/5x/10x (Assigned to the USER button, for switching levels) (When set to 59.94 Hz: 1080/60i, 720/60p, 480/60i only; when set to 50 Hz: 1080/50i, 720/50p, 576/50i only)

Memory Card Recorder

Recording Format:	AVCHD standard (MPEG-4 AVC/H.264) DV standard (AVI Type2)
Recording Media ¹⁾ :	SD memory card (FAT12, FAT16): 512 MB, 1 GB, up to 2 GB SDHC memory card (FAT32): 4 GB, 6 GB ²⁾ , 8 GB, 12 GB ²⁾ , 16 GB, 32 GB
Still Picture Recording Format:	JPEG corresponding (Design rule for Camera File system, based on Exif 2.2 standard), DPOF

Video/Audio Recording Specification (AVCHD)

Recording Video Signals:	[59.94 Hz model] PH mode: 1080/60i, 1080/30p (over 60i), 1080/24p (native), 720/60p, 720/30p (over 60p), 720/24p (native) HA/HG/HE mode: 1080/60i only [50 Hz model] PH mode: 1080/50i, 1080/25p (over 50i), 720/50p, 720/25p (over 50p) HA/HG/HE mode: 1080/50i only
Audio Recording Signal:	48 kHz/16 bit, Dolby Digital, 2 CH
Audio Bit Rate:	PH mode: 384 kbps, HA/HG/HE mode: 256 kbps

DV Recording Specification

Recording Video Signals:	[59.94 Hz model] 480/60i, 480/30p (over 60i), 480/24p (over 60i) [50 Hz model] 576/50i, 576/25p (over 50i)
Audio Recording Signal:	48 kHz/16 bit, Linear PCM (digital 2 CH)

Video Output

HDMI OUT (AVCHD mode only):	HDMI Type A, VIERA Link not supported
Analog Component OUT:	BNC x 3, Y: 1.0 V [p-p], 75 Ω, Pb/Pr: 0.7 V [p-p], 75 Ω
Composite OUT ³⁾ :	BNC x 1, 1.0 V [p-p], 75 Ω

Audio Input/Output

Internal Microphone:	Stereo microphone
XLR IN:	XLR (3 pin) x 2 (INPUT1, INPUT2), LINE/MIC switchable, high impedance LINE: 0 dBu MIC: -50 dBu/-60 dBu (switch with the menu) MIC +48 V ON/OFF (switchable)
External Microphone IN:	-70 dBV (Mic sensitivity: -50 dB equivalent, 0 dB=1 V/Pa 1 kHz) Stereo mini jack (3.5 mm diameter) (Not compatible with plug-in power microphone)
Audio OUT:	Pin jack x 2 (CH1, CH2), 600 Ω, 316 mV
HDMI OUT (AVCHD mode only):	2 CH (Linear PCM), 5.1 CH (Dolby Digital)
Headphones:	3.5 mm diameter, stereo mini jack x 1 -16 dBV (with 32 Ω load, Monitor VR max)
Speaker:	Round, 20 mm diameter
Other Input/Output	
Camera Remote:	2.5 mm diameter, super mini jack x 1 (ZOOM S/S) 3.5 mm diameter, mini jack x 1 (FOCUS/IRIS)
USB (AVCHD mode only):	Card reader function (no copyright protection support) USB Type B connector USB 2.0-compliant, PictBridge-compatible
DV (DV mode only):	6 pin (IEEE1394 compliant), digital IN/OUT

Monitor

LCD Monitor:	69 mm (2.7 inches) wide LCD color monitor, approx. 230,000 pixels
--------------	--

Included Accessories

AC adaptor/charger, 2,640 mAh battery pack (secure type),
AC cable, DC cable (catch type), Wireless remote controller with
button-type battery, Eye cup, Shoulder Strap, Grip belt,
Lens hood (inner), CD-ROM, AVCCAM Restorer (Windows PC/Mac)
The following accessories are attached to the unit. Large-sized lens
hood with wide angle of view, Lens hood cap, XLR audio adaptor cap

¹⁾1: SDHC/SD Memory Card (8 MB to 32 GB) can be used for storing/reading
scene file and user file, and reading metadata. SDXC Memory Cards cannot
be used with this product. ²⁾2: AVCHD mode only. ³⁾3: Shares analog
component terminal (Y terminal) (SW switching). Analog component signals
and composite signals cannot be output at the same time.

AG-AC8

General

Power Supply:	DC 7.2 V/9.3 V
Power Consumption:	Max. 6.7 W (Recording), 10.7 W (Charging)
Weight:	Approx. 2,270 g (5.00 lb) (with battery and an SD memory card)
Dimensions:	205 mm (W) x 217 mm (H) x 479 mm (D) (8.07 inches x 8.54 inches x 18.85 inches)

Lens

F Value:	F1.8 (WIDE)/F3.5 (TELE)
Zoom:	Optical Zoom: 21x Intelligent Zoom OFF: 26x Intelligent Zoom: 50x
Digital Zoom:	60x/1500x (The maximum value of zoom magnification)
Focal Length:	2.82 mm to 59.2 mm
35 mm Film Camera Equivalent:	<Motion Image> 28.0 mm to 729.6 mm (16:9) 36.2 mm to 893.0 mm (4:3) (*with Level Shot off) <Still Image> 33.2 mm to 697.6 mm (3:2) 28.0 mm to 729.6 mm (16:9) 33.9 mm to 712.6 mm (4:3)

Image Sensor

Effective Pixels:	<Motion Image> 3.11 megapixels (Wide) (4:3) 4.14 megapixels (Wide) (16:9) (*with Level Shot off) <Still Image> 3.24 megapixels (Wide) (4:3) 4.14 megapixels (Wide) (16:9) 3.24 megapixels (Wide) (4:3)
-------------------	---

Camera Section

Standard Illumination:	1,400 lx
Minimum Illumination:	2.0 lx (Low Light scene mode) 1 lx (Color Night View)
White Balance:	Auto/Indoor1/Indoor2/Sunny/Cloudy/White se
Shutter Speed:	<Motion Image> [59.94 Hz model] Auto Slow shutter ON: 1/30 sec. to 1/8000 sec. OFF: 1/60 sec. to 1/8000 sec. [50 Hz model] Auto Slow shutter ON: 1/25 sec. to 11/8000 sec. OFF: 1/50 sec. to 11/8000 sec. <Still Image> 1/2 sec. to 1/2000 sec.

Recording Section

Video Format:	[59.94 Hz model] 1080/60i, 480/60i [50 Hz model] 1080/50i, 576/50i
Compression:	AVCHD: MPEG4-AVC/H.264 (AVCHD standard compliant)
Audio Compression:	Dolby Digital (2 CH)
Microphone:	2 CH Stereo Microphone
Speaker:	Dynamic Type
Media Remaining Indication:	Yes

Still Image Section

Recording Format:	JPEG
Recording Image Size:	<Still Picture> 20.4 megapixels (6016 x 3384) (16:9) 15.1 megapixels (4480 x 3360) (4:3) 15.1 megapixels (4752 x 3168) (3:2) <Simultaneous Recording> 9.4 megapixels (4096 x 2304) (16:9) 1.4 megapixels (1440 x 1080) (4:3)

Video Output

AV OUT:	10 V [p-p], 75 Ω, NTSC system
Component OUT:	Y: 1.0 V [p-p], 75 Ω Pb/Pr: 0.7 V [p-p], 75 Ω
HDMI OUT:	HDMI Type A, 1080p, 1080i, 720p, 480p

Audio Output

AV OUT:	316 mV, 600 Ω, 2 CH
Headphone OUT:	77 mV, 32 Ω, stereo mini jack x 1
HDMI OUT:	Linear PCM/Dolby Digital
Microphone IN:	-60 dBV (Mic sensitivity: -40 dB equivalent, 0 dB=1 V/Pa 1 kHz) Stereo mini jack

Other Input/Output

USB:	Hi-Speed USB (USB 2.0) Host: USB terminal Type A Device: USB terminal Type B USB host function (for external drive)
------	--

Monitor

Monitor:	7.5 cm (3 inches), Wide LCD (460,800 dots)
Viewfinder:	6.1 mm (0.24 inches) wide EVF, approx. 263,000 dots (Included Accessories)

Included Accessories

AC Adaptor, AC Cable,
Rechargeable Battery Pack [2900 mAh/Lithium-ion], AV Cable,
USB Cable, External Stereo Microphone, Lens Cap, Eye cup

AG-HMR10

General

Power Supply:	DC 7.2 V (when the battery is used) 7.3 V (when the AC adaptor is used)
Power Consumption:	11.7 W (when the optional AG-HCK10G Camera Head is connected) 6.5 W (in standalone condition)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 580 g (1.28 lb) (Excluding battery) Approx. 691 g (1.52 lb) (Including bundled battery)
Dimensions :	96 mm (W) x 52.6 mm (H) x 133 mm (D) (3-3/4 inches x 2-1/8 inches x 5-1/4 inches) (Excluding the projection)

Video Recording

Recording Format:	AVCHD
Compression Method:	MPEG-4 AVC/H.264
Recording Media*1:	SD memory card (FAT12, FAT16): 512 MB, 1 GB, up to 2 GB SDHC memory card (FAT32): 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 32 GB
Recording Video Format*2:	[59.94 Hz] PH mode: 1080/60i, 1080/30p*3 (over 60i), 1080/24p*3 (Native)*4, 720/60p, 720/30p*3 (over 60p), 720/24p*3 (Native)*4 PM mode: 720/60p, HA/HG/HE mode: 1080/60i [50 Hz] PH mode: 1080/50i, 1080/25p*3 (over 50i), 720/50p, 720/25p*3 (over 50p), PM mode: 720/50p, HA/HG/HE mode: 1080/50i

Video Input/Output

SDI:	HD SDI IN, HD SDI/SD SDI OUT BNC x 1, 0.8 V [p-p], 75 Ω
HDMI:	HDMI OUT x 1 (HDMI Type A) [59.94 Hz] 1080/60i, 720/60p, 480/60p [50 Hz] 1080/50i, 720/50p, 576/50p (Not compatible with VIERA Link)
AG-HCK10G IN:	20 pin dedicated terminal (connection with the AG-HCK10G)

Audio System

Compression Method:	Recording/Playback: Dolby Digital/2 CH
Sampling Frequency:	48 kHz
Quantization:	16 bit
Compression Bit-rate:	PH mode: 384 kbps, HA/HG/HE mode: 256 kbps

Audio Input/Output

External Microphone IN:	-70 dBV (Mic sensitivity: -50 dB equivalent, 0 dB=1 V/Pa 1 kHz) Stereo mini jack (3.5 mm diameter) (Not compatible with plug-in power microphone)
HDMI OUT:	2 CH (Linear PCM), 5.1 CH (Dolby Digital)
Headphones:	Stereo mini jack (3.5 mm diameter) x 1, 100 Ω -22 dBV (with 32 Ω load)
Built-in Speaker:	Round, 20 mm diameter

Other Connectors

Camera Remote:	2.5 mm diameter, super mini jack x 1 (ZOOM S/S)
USB:	Type mini B connector (USB 2.0 compliant)

Monitor

LCD Monitor:	88.9 mm (3.5 inches) LCD color monitor, approx. 210,000 pixels
--------------	---

Included Accessories

AC adaptor/charger, 2,640 mAh /2,500 mAh (typ./min.) battery pack (secure type), AC cable, DC cable (catch type), CD-ROM, AVCCAM Restorer (Windows PC/Mac)

AG-HCK10G

General

Power Supply:	DC 8 V to 9 V (Supplied from the AG-HMR10)
Power Consumption:	3.5 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Approx. 275 g (0.61 lb)
Dimensions:	53.5 mm (W) x 56 mm (H) x 123.8 mm (D) (2-1/8 inches x 2-1/4 inches x 4-7/8 inches) (Excluding the projection part)

Camera

Pick-up Device:	3MOS (1/4.1 type progressive modes supported)
Picture Elements:	Effective: Approx. 2.51 megapixels x 3 (16:9)
Lens:	Lens with optical image stabilizer, 12x zoom, F1.8 to F2.8 (f=4.0 mm to 48 mm), 35 mm equivalent: 40.8 mm to 490 mm (16:9)
Filter Diameter:	43 mm
Optical Color Separation:	Prism system
ND Filter:	Auto On/Off by IRIS
Minimum shooting distance:	Approx. 0.9 m (Approx. 35.43 inches)
Gain Selection:	0 dB to 34 dB (Variable in 1 dB steps)
White balance:	ATW, preset 3200 K, preset 5600 K, W.set
Shutter Speed:	[59.94 Hz] 60i/60p mode: 1/60 sec. to 1/2000 sec. (7 steps) 30p mode: 1/30 sec. to 1/2000 sec. (8 steps) 24p mode: 1/24 sec. to 1/2000 sec. (8 steps) [50 Hz] 50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps) 25p mode: 1/25 sec. to 1/2000 sec. (8 steps)
Shutter Speed:	[59.94 Hz] 60i/60p mode: 1/60.0 sec. to 1/250.0 sec. 30p mode: 1/30.0 sec. to 1/250.0 sec. 24p mode: 1/24.0 sec. to 1/250.0 sec. [50 Hz] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed:	[59.94 Hz] 60i/60p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 24p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. [50 Hz] 50i/50p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec.
Minimum Luminance:	Approx. 1 lx (Gain: 34 dB, Slow Shutter: 1/2 sec.)

Video Output

AG-HMR10 OUT:	20 pin dedicated terminal (connection with the AG-HMR10)
---------------	---

Audio Input

Internal Microphone:	Stereo microphone
----------------------	-------------------

Included Accessories

Lens cap (mounted to the AG-HCK10G) , Lens hood (mounted to the AG-HCK10G)

*1: SDHC/SD Memory Card (8 MB to 32 GB) can be used for reading metadata.

*2: When the system frequency has been changed, turn the unit's power off and then back on so that the setting takes effect.

*3: Selectable only when combined with the AG-HCK10G.

*4: In the Native mode, AG-HMR10 record only active frames.

LCD Monitor



LED

BT-4LH310 789 mm (31.1 inches)



A Reference Monitor Supporting 4K Image Production and 2K/HD Operation

Connector: SDI (3G) 1/2/3/4 Display Port 1/2 HDMI 1/2
 GPI RS-232C RS-485 HEADPHONE
 Power: AC DC

HDMI

- Supports both 4K (4096 x 2160) and QFHD (3840 x 2160) resolution.
- Three types of 4K video input: 3G-SDI (4 lines or 2 lines), DisplayPort (2 lines or 1 line) and HDMI (2 lines or 1 line).
- LUT (look-up table) upload function.



WXGA

LED

BT-LH1850 470 mm (18.5 inches)

High-Quality Images and Low-Cost Operation for Wide-Ranging Broadcast Needs

Connector: SDI 1 SDI 2 VIDEO DVI-I HDMI
 AUDIO PIN GPI RS-232C RS-485 HEADPHONE
 Power: AC DC

HDMI

- 3D-LUT and 6-Pole color correction keeps colors faithful.
- Advanced image-enhancing circuitry, including excellent motion response and a diagonal line compensation circuit.
- Low power consumption and power save mode.
- A tilt stand is included as standard equipment.



FULL HD

LED

BT-LH2170 550 mm (21.5 inches)

High Picture Quality, High Performance and Rugged Durability, with Excellent Cost-Performance

Connector: SDI 1 (3G) SDI 2 VIDEO DVI-I HDMI
 AUDIO PIN GPI RS-232C RS-485 HEADPHONE
 Power: AC DC

HDMI

- 550 mm (21.5 inches) IPS (horizontal orientation) LCD panel that offers Full-HD (1920 x 1080) resolution.
- 3D-LUT and 6-Pole color correction keeps colors faithful.
- Various professional functions, including 3D*1 shooting assist.
- Production-tough aluminum diecast frame.

*1: This function assists 3D shooting with a 2D image display. The BT-LH2170 does not display 3D images.



WXGA

LED

BT-LH910G 230 mm (9 inches)

High-Resolution Meets the Needs of Acquisition, OB Van Installation and Live Broadcasting.

Connector: SDI 1(3G)*1 SDI 2 VIDEO HDMI VF
 YPbPr GPI RS-485 HEADPHONE
 Power: DC BATTERY

HDMI

- WXGA (1280 x 768) resolution IPS panel.
- 15-pin viewfinder terminal can be used as a viewfinder for camera recorders.
- Various professional functions, including 3D*2 shooting assist.
- DC operation (Anton Bauer/DC IN).

*1: 3G-SDI supports 1080/50p, 1080/59.94p, and 1080/60p of the SMPTE ST 425-A standard.

*2: These functions assist 3D shooting with a 2D image display. The BT-LH910G does not display 3D images.

LCD Monitor Features and Functions

Features and Functions Comparison Table

*For details, see page 49 – 52.

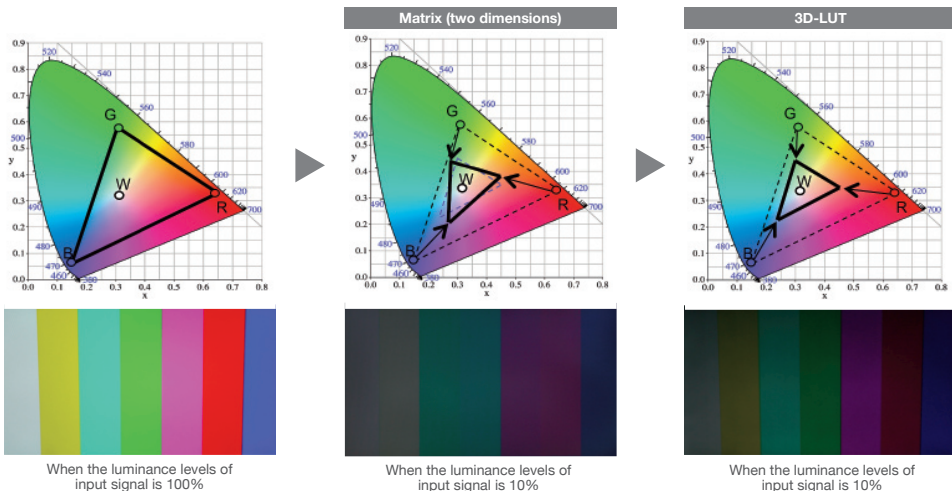
	BT-4LH310	BT-LH2170	BT-LH1850	BT-LH910G
1 3D-LUT & 6-Axis Color Correction	✓	✓	✓	✓
2 I/P Conversion Circuit for Motion Response Latency Less than 1 Field	✓	✓	✓	✓
3 Diagonal Line Compensation	✓	✓	✓	✓
4 Gradation & RGB Manual Control	✓	✓	✓	✓
5 High-Speed Response	✓	✓	✓	✓
6 Wide Viewing Angle	178°	178°	horizontal 170° vertical 160°	176°
7 VARICAM Cine gamma Compensation	✓	✓	✓	✓
8 Black Mode	✓	✓	✓	✓
9 Calibration Function	✓	✓	✓	✓
10 Various Markers	✓	✓ (2D mode)	✓	✓
11 Cross Hatch Overlay	✓	✓	✓	✓
12 Waveform Monitoring	Y/R/G/B	Y/R/G/B	Y/R/G/B	Y/R/G/B
13 Vectorscope Display	✓	✓	✓	✓
14 Pixel-to-Pixel Display	✓	✓	✓	✓
15 Zoom Display	✓	–	–	–
16 Focus-in-Red Display	✓	✓	✓	✓
17 Y Map Display	✓	✓	–	–
18 Still Frame Display (Frame Grab)	✓	✓	✓	✓
19 Quad Display (2K/HD)	✓	–	–	–
20 2-Input Split-Screen	–	✓	–	–
21 Error Indication Display	✓	–	–	–
22 Audio Level Meter	✓ (color)	✓ (color)	✓ (color)	✓ (color)
23 Time Code Display	✓	✓	✓	✓
24 Closed Caption Display	8 Windows	8 Windows	8 Windows	8 Windows
25 HV Delay Display and B/W Mode	MONO Mode only	✓	✓	✓
26 Function Keys	5	5	5	3
27 Diverse 3D Camera Assist Functions	–	✓	–	✓
28 External Remote Compatibility	RS-232C/ GPI/RS-485	RS-232C/ GPI/RS-485	RS-232C/ GPI/RS-485	RS-232C/ GPI
29 Tally Lamp (s)	Front	Front	Front	Front/Rear
30 Power Save Mode	✓	✓	✓	✓
31 Key Lock	✓	✓	✓	✓
32 Rugged Frame Structure	Aluminum Frame	Aluminum Diecast Frame	–	Magnesium Diecast Frame
33 AC/DC Power Supply	AC/DC 24 V	AC/DC 12 V	AC/DC 12 V	DC 12 V
34 Wall/Rack Mounting (with Option)	–	Wall Mounting	Wall Mounting	Rack Mounting
35 Fanless	✓	✓	✓	✓
36 Mercury Free, LED Backlight	✓	✓	✓	✓
37 Speakers and Headphone Jack	✓	✓	✓	Headphone Jack only

P2

AVCCAM

MONITOR

LCD Monitor Features and Functions



[1] 3D-LUT Color Correction and 6-Axis Color Correction

The color space on LCD displays tends to narrow when the luminance level drops, and it's often accompanied by color phase shifts that cause colors to drift. 3D-LUT (Look Up Table) Color Correction on the LH Series LCD monitors includes a look up table for each luminance level, and applies 10 bit image processing to each RGB color to balance the six coordinate axes of the three primary colors (RGB) and their complementary colors (CMY). This solves the problem of color drifting at low luminance levels, and keeps colors natural.

In addition to enhancing low luminance areas, 3D-LUT Color Correction helps to produce finely nuanced intermediate hues. Based on color measurements in the intermediate color parts of the image, this function applies smooth correction processing while balancing the six coordinates of the three primary colors (RGB) and their complementary colors (CMY), resulting in beautifully smooth gradation. It keeps the intermediate shades of extremely fine colors vibrant and lifelike.



3-Axis (RGB) Coordinate Correction



6-Axis (RGB/CMY) Coordinate Correction

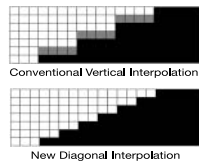
[2] I/P Conversion Circuit for Motion Response

A circuit delay time (not including panel delay) of approximately 5 msec*1 is achieved by incorporating an I/P converter circuit that converts SD and HD interlace signals with high precision and generates a progressive signal without causing field-length delay. Minimizing the delay between the input signal and monitor output enables the user to confirm footage without any incongruity.

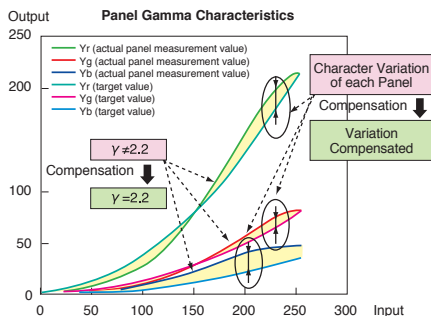
*1: Differs slightly depending on the signal format.

[3] Diagonal Line Compensation

Jagged noise on diagonal lines in moving images is a common problem. These LCD monitors solve this by detecting correlations in the diagonal direction, resulting in smooth, precise reproduction of moving images.



[4] Ideal Gradation for Broadcast Applications, and Selectable Color Temperature



Applicable function varies depending on the models. Please see page 48 for details.

In order to optimize the LCD monitor for professional broadcasting applications, compensation is conducted for each monitor in 256 discrete RGB steps, rated gamma properties (gamma = 2.2) are reproduced, and gradation suitable for broadcasting is achieved. The BT-4LH310's color temperature of 9300 K/6500 K/6300 K/6000 K/5600 K can be selected with the variable setting. The BT-LH2170/LH1850/LH910G's color temperature of 9300 K/6500 K/5600 K and 3000 K to 9300 K can also be selected with the variable setting.

[5] High-Speed Response

All models feature an overdrive circuit to improve response in intermediate gradations.

[6] Wide Viewing Angle

By using a high-intensity, high-contrast IPS LCD panel, a wide viewing angle is achieved. Easy viewing is ensured by reducing color changes due to the viewing angle.

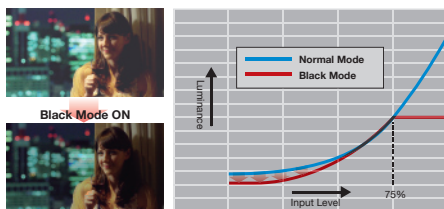
* The BT-LH1850 is not equipped with an IPS panel.

[7] Cine Gamma Compensation

The cine-gamma (F-REC) compensation function enables compatibility as a monitor for a Varicam Camcorder. This function supports the production of movies, film-like HDTV programs, and TV commercials.

[8] Black Mode

All models are equipped with a black mode that also makes dark image areas in low-gradation scenes easier to see. It helps for producing movies as well as film-like HD programs and commercials.



*Pictures simulated.

[9] Calibration Function

Pre-installed software allows calibration without using a PC, by simply connecting a manufacturer-designated display color analyzer and measurement probe to the monitor.



*Konica Minolta CA-310 Display Color Analyzer with CA-PU32/PU35 or CA-PSU32/PSU35 Standard Measurement Probe. For more information about the Konica Minolta calibration system, please see the following website. <<http://www.konicaminolta.com/instruments/index.html>>.

[10] Various Markers

Aspect Marker (17:9*, 16:9): All models have seven modes of 4:3, 13:9, 14:9, CNSCO 2.39, CNSCO 2.35, 2:1 and VISTA, with background brightness control of Black (0%), Half (50%) or Normal (100%).

Safe Area Marker:

All models have five modes of 95%, 93%, 90%, 88% or 80%. In addition, the BT-4LH310 has USER, DOT, LINE, or VAR marker (selectable). In 16:9 mode, a superimposed safe area marker can display, corresponding to the aspect marker's angle of view.

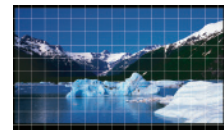
Center Marker: Can be displayed together with another marker, as shown in the example at the right above.



4:3 Aspect and 80% Safe Area Marker



Safe Area and Center Marker



Cross Hatch ON

[11] Cross Hatch Overlay

A simple cross hatch overlay can be displayed to check the tilt of the camera.

* Intervals vary depending on the model.

[12] Waveform Monitoring

The built-in waveform monitoring function displays a waveform in a sub-screen. You can select the signal to be displayed from Y, R, G or B.



Waveform Monitoring

[13] Vectorscope Display

All lines of the input signal via SDI are displayed as a vectorscope, and can be positioned in any of the four corners of the screen.



Vectorscope Display

[14] Pixel-to-Pixel Display

This function displays video pixels without any resizing.

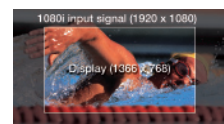
• BT-4LH310/LH2170:

Displays images with the same number of pixels as the source images.

• BT-LH1850:

When displaying 1080i/p, you can check the zoom-in image and choose from five display areas: center, right-top, right-bottom, left-top or left-bottom.

• **BT-LH910G:** With 1080/60i input signals, you can check the zoom-in image with a screen width equivalent to 342.9 mm (13.5 inches).



Pixel-to-Pixel Display Image
BT-LH1850 1080 center mode

LCD Monitor Features and Functions

[15] Zoom

The BT-4LH310 is equipped with a Zoom function. Enlarges (4x normal size) the center section of the image or one of the quarter sections and displays it on the full screen for accurate, easy focusing.



Enlarges the center section of the image or one of the quarter sections

Zoom Display (Center)

[16] Focus-in-Red

This function emphasizes the sharply focused area of the image by showing it in an easily visible red.



Focus-in-Red ON

[17] Y Map Display

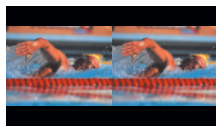
This function allows quick visual confirmation of scene luminance levels via means of assigning a simple color code for each luminance step.



Y MAP

[18] Still Frame Display (Frame Grab)

A frame of video can easily be frozen and displayed as a still image. The BT-4LH310 displays on the full-screen, for comparing camera angles or colors between takes or scenes. The BT-LH2170/1850/910G display on the left side of the screen to match a live camera with a frame of video shot at an earlier time or with a different camera. There are two display modes: FULL and PART (center).



Still Video Monitor
FULL mode (4:3)

[19] Quad Display (2K/HD)

The BT-4LH310 Quad Display function displays a waveform monitor (WFM) and a vector scope (VSC) as well as one of the Focus-in-Red, Y Map and Zebra assist functions simultaneously with a full-pixel image from a 2K (2048 x 1080) or HD input source. This function also allows a single BT-4LH310 to be used as four 2K/HD monitors. It displays full-pixel images without resizing.



Input source image (upper left),
Focus-in-Red (lower left),
WFM (upper right) and
VSC (lower right)



Four-Window Display

[20] 2-Input Split-Screen

The BT-LH2170 simultaneously displays two images side-by-side from two video inputs. This is especially useful for combining CGs and actual images. Because a single monitor can temporarily serve as two monitors, it helps to save space. It is also possible to set the size, color space, and gamma and RGB gains individually for each input.

*It may not be possible to display both images simultaneously with certain input signal combinations.



2-Input Split-Screen Function

[21] Error Indication

The BT-4LH310 is equipped with an Error Indicate function. Transmission and other errors are detected during SDI input, and the error status is displayed and logged.

[22] Audio Level Meter

All models are equipped with a color audio level meter. This meter displays the level of embedded audio (3G SDI, SDI, HDMI*, Display Port***) input. Reference point setting, peak hold and overrange display are also possible. The display mode can be selected from 2-channel, 4-channel, 8-channel or OFF.

*1: 2-channel display for HDMI input.

*2: BT-4LH310 only. 2-channel display for Display Port input.



BT-LH910G Color Audio Level Meter



8ch Audio Level Meter

[23] Time Code Display

With HD SDI input, this function displays the value of the VITC, LTC or UB time code.

* In the BT-4LH310, this function is supported only in the 2K/HD mode.



Time Code Display

[24] Closed Caption Display

All models can display closed captions with an SDI or VIDEO input, on up to eight windows simultaneously. The BT-LH2170/LH1850/LH910G support the EIA-708 HD-SDI CC standard (EIA-608 SD SDI CC standard). The BT-4LH310 supports the EIA/CEA-708 HD SDI CC standards.

* In the BT-4LH310, this function is supported only in the 2K/HD mode.



Closed Caption Display

[25] HV Delay Display and Mono Mode

The HV Delay function that displays the video blanking period, and the Mono mode that switches the display to black-and-white, can be assigned to function keys for quick access.

* In the BT-4LH310, this function is supported only in the MONO mode.

[26] Function Keys

Each of the function keys on the front panel can be assigned a function selected from various display and switchover functions* to enable one-touch display ON/OFF or mode change.

* Assignable functions vary depending on the model.

[27] Diverse 3D Camera Assist Functions

The BT-LH2170/LH910G let you check 3D images using the left-eye and right-eye video signals from a 3D camera.

- **MIRROR:** With the L (left-eye) and R (right-eye) images displayed side-by-side, the left and right images (BT-LH20170) or right images (BT-LH910G) can be independently flipped in the horizontal or vertical direction.
- **SHIFT:** The R image can be moved horizontally or vertically in the overlay display.
- **COMPARISON:** Simplifies checking for differences in the frame edges of the L and R images. In addition to side-by-side display, a top & bottom display is now possible.
- **CONVERGENCE:** Switches L or R images displayed on the full screen (manually or automatically).
- **COLOR:** Combines L and R images and displays them in a checkerboard pattern to check brightness and color variance.
- **ZOOM FOCUS:** Enlarges and displays L and R images side-by-side to check variance in focus and zoom. A new dual-window focus-in-red display is also provided.
- **VERTICAL:** A horizontal line marker allows inspection of vertical misalignment between the L and R images.
- **OVERLAY:** Left-right disparity can be checked by superimposing a marker on the overlay display. The BT-LH2170 has three overlay modes: normal, difference B/W, or difference color. The BT-LH910G has two overlay modes: normal or difference B/W.

[28] External Remote Compatibility

The standard RS-232C (9 pin) and GPI (9 pin) remote input terminals allow the monitor to be operated by an external device. The BT-4LH310/LH2170/LH1850 are also equipped with RS-485 (R/J-45) serial remote terminals. Up to 32 monitors can be connected and controlled in a loop-through configuration.

[29] Tally Lamps

The front panel has red, green and amber tally lamps. The BT-LH910G also has a rear tally lamp.

[30] Power Save Mode

When no signal is received for 60 continuous seconds, the Power Save mode is activated to minimize power consumption.

* Not provided in the BT-LH910G.

[31] Key Lock Function

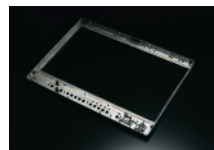
This disables front panel operation/control functions, except for the power switch, menu operation, GPI control and sound level adjustment.

[32] Rugged Frame Structure

The BT-4LH310 features an aluminum frame.

The BT-LH2170 feature an aluminum diecast frame (front section only), while the BT-LH910G has a magnesium diecast frame. These rugged structures provide the toughness required in professional field work.

* Not provided in the BT-LH1850.



Aluminum diecast frame
(BT-LH2170)

[33] AC/DC Power Supply Compatibility

The BT-4LH310 supports a 28 V DC power supply. The BT-LH2170/LH1850/LH910G support a 12 V DC power supply. All models support battery use.

[34] Wall Mounting/Rack Mounting

The BT-4LH310/LH2170/LH1850 allow wall mounting of these thin, lightweight LCD monitors, with optional wall mounting hardware. The BT-LH910G is rack mountable.

[35] Fanless Quiet Operation

All models are ideal for use in studios, on production sets or in edit rooms.

[36] Mercury Free, LED Backlight

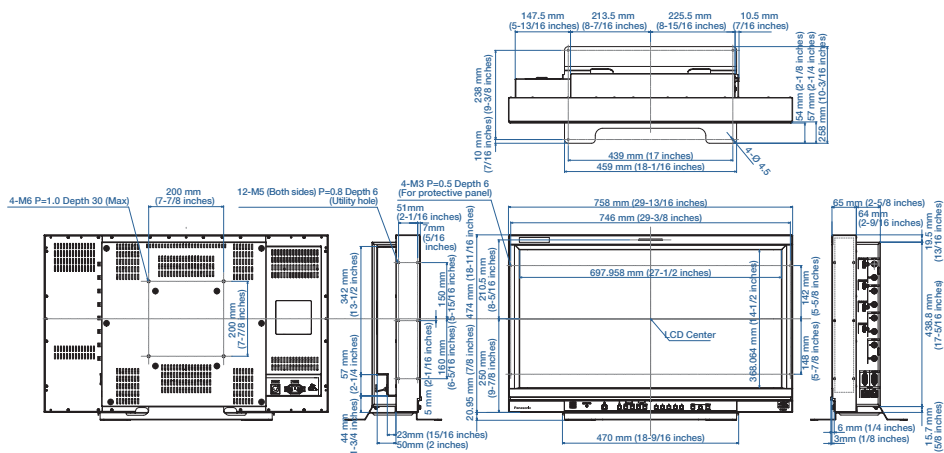
In all models, the LED backlight contains no mercury as an environmental protection measure.

[37] Speakers and Headphone Jack

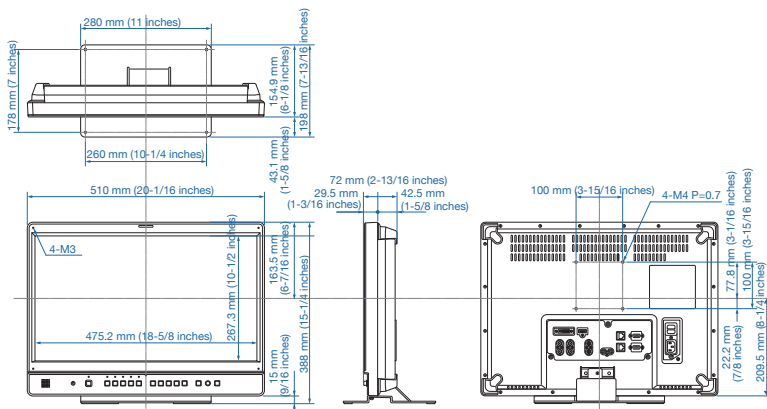
The BT-4LH310/LH2170/LH1850 are equipped with speakers and a headphone jack on the front panel. The BT-LH910G is equipped with a headphone jack on the front panel.

LCD Monitor Dimensions

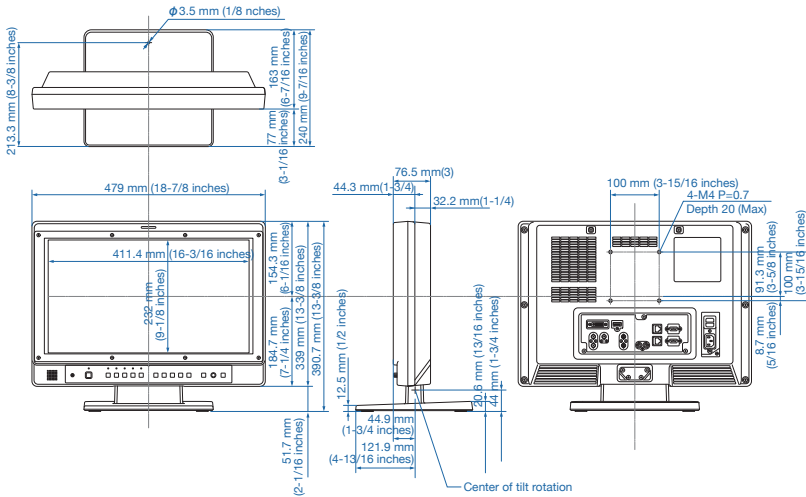
BT-4LH310



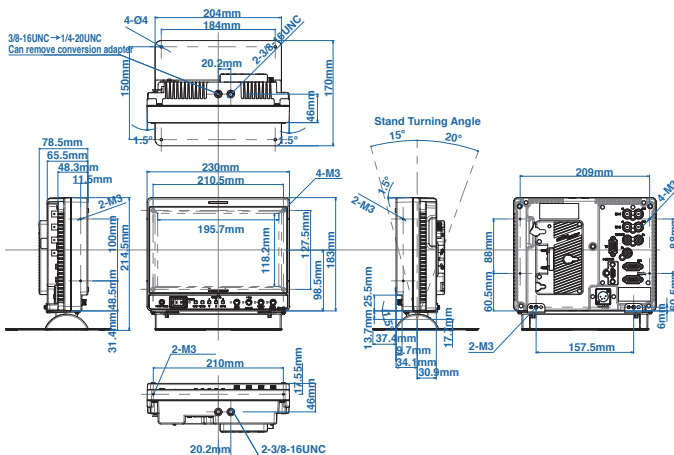
■ BT-LH2170



BT-LH1850



BT-LH910G



LCD Monitor Supported Video Formats

BT-LH2170/LH1850/LH910G Supported Input Formats

Input Signal Format	BT-LH2170						BT-LH1850				
	VIDEO	SDI 1 (3G-SDI)	SDI 2	HDMI	DVI		VIDEO	SDI 1/SDI 2	HDMI	DVI-I	
					ANALOG YPbPr	DIGITAL VIDEO				ANALOG YPbPr	DIGITAL VIDEO
NTSC	✓						✓				
PAL	✓						✓				
640 x 480 (59.94 Hz)									✓		
640 x 480 (60 Hz)									✓		
480/59.94i		✓	✓	✓	✓	✓		✓		✓	✓
480/59.94p				✓	✓	✓			✓	✓	✓
576/50i		✓	✓	✓	✓	✓		✓		✓	✓
576/50p				✓	✓	✓			✓	✓	✓
720/50p		✓	✓	✓	✓	✓		✓	✓	✓	✓
720/59.94p		✓	✓	✓	✓	✓		✓	✓	✓	✓
720/60p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1035/59.94i		✓*1	✓*1	✓*1	✓*1	✓*1		✓*1	✓*1	✓*1	✓*1
1035/60i		✓*2	✓*2	✓*2	✓*2	✓*2		✓*2	✓*2	✓*2	✓*2
1080/23.98PsF		✓	✓		✓			✓		✓	
1080/24PsF		✓	✓		✓			✓		✓	
1080/25PsF		✓*3	✓*3		✓*3			✓*3		✓*3	
1080/23.98p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/24p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/25p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/29.97p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/30p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/50i		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/50p		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/59.94i		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/60i		✓	✓	✓	✓	✓		✓	✓	✓	✓
1080/59.94p		✓		✓		✓			✓		✓
1080/60p		✓		✓		✓			✓		✓

Input Signal Format	BT-LH910G						
	VIDEO	VF-VIDEO	VF-YPbPr	YPbPr	SDI 1 (3G-SDI)	SDI2	HDMI
NTSC	✓	✓					
PAL	✓	✓					
640 x 480 (59.94 Hz)							✓
640 x 480 (60 Hz)							✓
480/59.94i			✓	✓	✓	✓	✓
480/59.94p			✓	✓	✓	✓	✓
576/50i			✓	✓	✓	✓	
576/50p			✓	✓			✓
720/50p			✓	✓	✓	✓	✓
720/59.94p			✓	✓	✓	✓	✓
720/60p			✓	✓	✓	✓	✓
1035/59.94i			✓*1	✓*1	✓*1	✓*1	✓*1
1035/60i			✓*2	✓*2	✓*2	✓*2	✓*2
1080/23.98PsF			✓	✓	✓	✓	
1080/24PsF			✓	✓	✓	✓	
1080/25PsF			✓*3	✓*3	✓*3	✓*3	
1080/23.98p					✓	✓	✓
1080/24p					✓	✓	✓
1080/25p					✓	✓	✓
1080/29.97p					✓	✓	✓
1080/30p					✓	✓	✓
1080/50i			✓	✓	✓	✓	✓
1080/50p					✓*4 *5		✓
1080/59.94i			✓	✓	✓	✓	✓
1080/60i			✓	✓	✓	✓	✓
1080/59.94p					✓*4 *5		✓
1080/60p					✓*4 *5		✓

Input Signal Format	BT-LH2170		BT-LH1850
	HDMI*6	DVI-I	
640 x 480 (60 Hz)	✓	✓	✓
800 x 600 (60 Hz)		✓	✓
1024 x 768 (60 Hz)	✓	✓	✓
1280 x 768 (60 Hz)	✓	✓	✓
1280 x 1024 (60 Hz)	✓	✓	
1366 x 768 (60 Hz)			✓
1920 x 1080 (60 Hz)	✓	✓	

✓: Supported

*1: When a 1035/59.94i signal is input, images are displayed in 1080/59.94i. In that case, the displayed markers are for 1080/59.94i.

*2: When 1035/60i signal is input, images are displayed in 1080/60i. In that case, the displayed markers are for 1080/60i.

*3: 1080/25PsF input is displayed as 1080/50i.

*4: 3G-SDI supports 1080/50p, 1080/59.94p, and 1080/60p of the SMPTE ST 425-A standard

*5: RGB444 and YCbCr422 (12 bit) are not supported.

*6: The PC signal (1920 x 1080) on HDMI will be displayed as 1080/60p video signal.

BT-LH2170 3G-SDI Supported Input Formats/ 3D Assist Mode Supported Input Formats

Input Terminal	Level	Format	Pixel Resolution	Bit	Interlace/Progressive	Frequency	Input Signal Format/Status Display	SDI 1/2 (SIMULTANEOUS)
SDI 1	A	1920 x 1080	4:2:2 (YCbCr)	10	Progressive	60 ^{*2} , 50	720/50p	✓
			4:4:4 (RGB)	10	Interlace	60 ^{*2} , 50	720/59.94p	✓
			4:4:4:4 (RGB+A)		Progressive	30 ^{*2} , 25, 24 ^{*2}	720/60p	✓
			4:4:4 (YCbCr)	10	Interlace	60 ^{*2} , 50	1035/59.94i ^{*3}	✓
			4:4:4:4 (YCbCr+A)		Progressive	30 ^{*2} , 25, 24 ^{*2}	1035/60i ^{*4}	✓
			4:4:4 (RGB)	12	Interlace	60 ^{*2} , 50	1080/23.98PsF	✓
					Progressive	30 ^{*2} , 25, 24 ^{*2}	1080/24PsF	✓
			4:4:4 (YCbCr)	12	Interlace	60 ^{*2} , 50	1080/25PsF ^{*5}	✓
					Progressive	30 ^{*2} , 25, 24 ^{*2}	1080/23.98p	✓
			4:2:2 (YCbCr)	12	Interlace	60 ^{*2} , 50	1080/24p	✓
					Progressive	30 ^{*2} , 25, 24 ^{*2}	1080/50i	✓
	B-DL	1920 x 1080	4:4:4 (RGB)	10	Progressive	60 ^{*2} , 50	1080/59.94i	✓
			4:4:4:4 (YCbCr+A)				1080/60i	✓
			4:2:2 (YCbCr)	10	Progressive	60 ^{*2} , 50		
			4:4:4 (RGB)		Interlace	60 ^{*2} , 50		
			4:4:4:4 (RGB+A)	10	Progressive	30 ^{*2} , 25, 24 ^{*2}		
			4:4:4 (YCbCr)		Interlace	60 ^{*2} , 50		
			4:4:4:4 (YCbCr+A)	10	Progressive	30 ^{*2} , 25, 24 ^{*2}		
			4:4:4 (RGB)		Interlace	60 ^{*2} , 50		
					Progressive	30 ^{*2} , 25, 24 ^{*2}		
			4:4:4:4 (YCbCr)	12	Interlace	60 ^{*2} , 50		
					Progressive	30 ^{*2} , 25, 24 ^{*2}		
	B-DS ^{*1}	2 x 1920 x 1080	4:2:2 (YCbCr)	10	Interlace	60 ^{*2} , 50		
					Progressive	30 ^{*2} , 25, 24 ^{*2}		
		2 x 1280 x 720	4:2:2 (YCbCr)	10	Interlace	60 ^{*2} , 50		
					Progressive	30 ^{*2} , 25, 24 ^{*2}		

✓: Supported

*1: Only the data stream1 is displayed.

*2: It corresponds to frame frequency 1/1.001.

*3: When 1035/59.94i signal is input, status display shows as 1080/59.94i.

*4: When 1035/60i signal is input, status display shows as 1080/60i.

*5: When 1080/25PsF signal is input, status display shows as 1080/50i.

BT-4LH310 4K (3840 x 2160 Resolution) Video Inputs

Color Space	YCbCr 4:2:2						YCbCr 4:4:4 / RGB 4:4:4			
	8 bit		10 bit		12 bit		8 bit		10 bit	
Max. Bit	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60
Frame Frequency (Hz)	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60
HDMI	✓ (1)	✓ (2)			✓ (1)	✓ (2)	✓ (1)	✓ (1)		
DisplayPort							✓ (1)	✓ (2)	✓ (1)	✓ (2)
3G-SDI	✓ (4/2 ^{*1})	✓ (4)	✓ (4/2 ^{*1})	✓ (4)	✓ (4)		✓ (4)		✓ (4)	

*The numerical value in a parenthesis shows the number of the cables simultaneously connected to each terminal. *1: The connection of two (3G Level B-DS) is possible.

BT-4LH310 4K (4096 x 2160 Resolution) Video Inputs

Color Space	YCbCr 4:2:2						YCbCr 4:4:4 / RGB 4:4:4		
	8 bit		10 bit		12 bit		8 bit		10 bit
Max. Bit	24	25	50, 60	24	25	50, 60	24	25	50, 60
Frame Frequency (Hz)	24	25	50, 60	24	25	50, 60	24	25	50, 60
HDMI	✓ (1)		✓ (2)				✓ (1)		✓ (2)
DisplayPort									
3G-SDI	✓ (4/2 ^{*1})	✓ (4/2 ^{*1})	✓ (4)	✓ (4/2 ^{*1})	✓ (4/2 ^{*1})	✓ (4)	✓ (4)	✓ (4)	

Color Space	YCbCr 4:4:4 / RGB 4:4:4						YCbCr 4:4:4 / RGB 4:4:4		
	8 bit		10 bit		12 bit		8 bit		10 bit
Max. Bit	24	25	50, 60	24	25	50, 60	24	25	50, 60
Frame Frequency (Hz)	24	25	50, 60	24	25	50, 60	24	25	50, 60
HDMI	✓ (1)		✓ (2)						
DisplayPort	✓ (1)		✓ (2)	✓ (1)		✓ (2)			
3G-SDI	✓ (4)	✓ (4)		✓ (4)	✓ (4)		✓ (4)	✓ (4)	

*The numerical value in a parenthesis shows the number of the cables simultaneously connected to each terminal. *1: The connection of two (3G Level B-DS) is possible.

LCD Monitor Specifications

	BT-4LH310	BT-LH2170
GENERAL		
Power Requirement	AC 100 V to 240 V, 50 Hz/60 Hz, 1.71 A to 0.67 A, DC 28 V (23.4 V to 30.0 V), 4.59 A	AC 100 V to 240 V, 50 Hz/60 Hz, 0.55 A to 0.25 A DC 12 V (11 V to 17 V), 3.8 A
Dimensions (WxHxD)	758 mm x 495 mm x 258 mm (including stand) (29-13/16 inches x 19-1/2 inches x 10-3/16 inches) 758 mm x 474 mm x 132 mm (unit only, not including stand) (29-13/16 inches x 18-5/8 inches x 5-3/16 inches)	510 mm x 388 mm x 198 mm (including stand) (20-1/16 inches x 15-1/4 inches x 7-13/16 inches) 510 mm x 373 mm x 72 mm (unit only, not including stand) (20-1/16 inches x 14-5/8 inches x 2-13/16 inches)
Weight	Approx. 20.0 kg (44.1 lbs) (including stand) Approx. 18.5 kg (40.8 lbs) (unit only, not including stand)	Approx. 7.0 kg (15.43 lb) (including stand) Approx. 6.1 kg (13.45 lb) (unit only, not including stand)
Operating Temperature	5 °C to 35 °C (41 °F to 95 °F) (up to 2 000 m above sea level)	5 °C to 35 °C (41 °F to 95 °F)
Operating Humidity	20 % to 80 % (no condensation)	20 % to 80 % (no condensation)
Storage Temperature	-20 °C to 60 °C (-4 °F to 140 °F)	-20 °C to 60 °C (-4 °F to 140 °F)
LCD PANEL		
Panel Size	789 mm (31.1 inches) (effective display area)	550 mm (21.5 inches)
Aspect Ratio	17:9	16:9
Resolution	4096 pixels x 2160 pixels	1,920 pixels x 1,080 pixels (FULL HD)
Display Colors	Approx. 1,070,000,000	Approx. 16,770,000 colors
Viewing Angle	178° both horizontal and vertical (contrast >10:1)	178° both horizontal and vertical (contrast >10:1)
CONNECTORS		
Video Input	SDI: BNC x 4, SMPTE ST424/425-1/372/274/296 compliant, embedded audio supported 3G-SDI: SMPTE ST299 compliant, 48 kHz, 16 CH, synchronous supported, HD SDI: SMPTE ST299 compliant, 48 kHz, 8 CH, synchronous supported, HDMI: HDMI x 2 (TypeA), HDCP supported, embedded audio supported, VIERA Link not supported DisplayPort: DisplayPort x 2, HDCP supported, embedded audio supported	Video: BNC x 1 SDI: BNC x 2, SMPTE ST425/424/274/296/259/ ITU-R BT.656-4 compliant, embedded audio supported 3G-SDI: SMPTE299M compliant, 48 kHz, 16 CH, synchronous supported HD SDI: SMPTE299M compliant, 48 kHz, 8 CH, synchronous supported SD SDI: SMPTE272M compliant, 48 kHz, 4 CH, synchronous supported HDMI: HDMI x 1 (TypeA), HDCP supported, embedded audio supported, VIERA Link not supported DVI-I: DVI-I x 1, HDCP supported, TMDS single link
Video Output	SDI: BNC x 4, with active through-out	Video: BNC x 1, through-out (75 Ω auto) SDI: BNC x 2, active through-out
Audio Input	—	Pinjack x 2 (stereo)
Headphone Output	M3 stereo mini jack x 1	M3 stereo mini jack x 1
Remote	GPI: D-SUB, 9 pin RS-232C: D-SUB, 9 pin RS-485: RJ-45 x 2 (Input, Output)	GPI: D-SUB, 9 pin RS-232C: D-SUB, 9 pin RS-485: RJ-45 x 2 (input, output)
External DC Power Input	XLR, 4 pin	XLR, 4 pin
SIGNAL LEVEL		
Video	—	HD/VD Signal level: TTL level
Audio	Speaker output: 0.5 W, Monaural Head phone output: 32 Ω, Variable Level	Audio input signal level: 0.31 Vrms Speaker output: 0.5 W, Monaural Head phone output: 32 Ω, Variable Level
OTHERS		
Supplied Accessories	Power cord, Stand, Stand screw, Protective panel screw	Power cord, Stand, Stand screw, Protective panel screw
Optional Accessories	—	Wall mount adaptor

Optional Accessories



BT-WMA17G
Wall Mount Adaptor
for BT-LH2170/LH1850
(Indoor use only)
Mount angles for LCD
monitor can be adjusted
from up 5° to down 10°.



AW-PS550N
AC Adaptor for
BT-LH910G



BT-CS910G
VF Cable for
BT-LH910G

BT-LH1850	BT-LH910G
AC 100 V to 240 V, 50 Hz/60 Hz, 0.3 A to 0.15 A DC 12 V (11 V to 17 V), 1.8 A	DC 12 V (11 V to 17 V), 1.9 A
479 mm x 390.7 mm x 240 mm (including stand) (18-7/8 inches x 15-3/8 inches x 9-7/16 inches), including stand 479 mm x 339 mm x 76.5 mm (unit only, not including stand) (18-7/8 inches x 13-3/8 inches x 3 inches),	230 mm x 214.5 mm x 170 mm (including stand) (9-1/16 inches x 8-7/16 inches x 7-11/16 inches) 230 mm x 183 mm x 78.5 mm (unit only, not including stand) (9-1/16 inches x 7-13/64 inches x 3-1/16 inches)
Approx. 7.0 kg (15.43 lb) (including stand) Approx. 5.6 kg (12.35 lb) (unit only, not including stand)	Approx. 2.4 kg (5.3 lbs) (including stand) Approx. 1.7 kg (3.7 lbs) (unit only, not including stand)
5 °C to 35 °C (41 °F to 95 °F)	0 °C to 40 °C (32 °F to 104 °F)
20 % to 80 % (no condensation)	10 % to 85 % (no condensation)
-20 °C to 60 °C (-4 °F to 140 °F)	-20 °C to 60 °C (-4 °F to 140 °F)
470 mm (18.5 inches)	230 mm (9 inches) of effective display area
16:9	15:9
1,366 pixels x 768 pixels (WXGA)	1,280 pixels x 768 pixels (WXGA)
Approx. 16,770,000 colors	Approx. 16,770,000 colors
170° horizontal, 160° vertical (contrast > 10:1)	176° both horizontal and vertical (contrast > 10:1)
Video: BNC x 1 SDI: BNC x 2, SMPT274M/296M/259M-C/ITU-R BT.656-4 compliant, embedded audio supported, HD SDI: SMPTE299M compliant, 48 kHz, 8 CH, synchronous supported, SD SDI: SMPTE272M compliant, 48 kHz, 4 CH, synchronous supported, HDMI: HDMI x 1 (TypeA), HDCP supported, embedded audio supported, VIERA Link not supported DVI-I: DVI-I x 1, HDCP supported, TMDS single link	Video: BNC x 1, (shares with Analog component Y) YPbPr/RGB: BNC x 3, (Y shares with Video) SDI: BNC x 2, SMPT274M/296M/259M-C/ITU-R BT.656-4 compliant, embedded audio supported HD SDI: SMPTE299M compliant, 48 kHz, 8 CH, synchronous/asynchronous supported SD SDI: SMPTE272M compliant, 48 kHz, 4 CH, synchronous supported, HDMI: HDMI x 1 (TypeA), HDCP supported, embedded audio supported, VIERA Link not supported VF: D-SUB, 15 pin x 1
Video: BNC x 1, through-out (75 Ω auto) SDI: BNC x 1, switched-out Pinjack x 2 (stereo)	SDI: BNC x 2, through-out —
M3 stereo mini jack x 1	M3 stereo mini jack x 1
GPI: D-SUB, 9 pin RS-232C: D-SUB, 9 pin RS-485: RJ-45 x 2 (input, output)	GPI: D-SUB, 9 pin RS-232C: D-SUB, 9 pin
XLR, 4 pin	XLR, 4 pin
HD/VD Signal level: TTL level	—
Audio input signal level: 0.31 Vrms Speaker output: 0.5 W, Monaural Head phone output: 32 Ω, Variable Level	Head phone output: 32 Ω, Variable Level
Power cord, Tilt stand, Tilt stand screw, Protective panel screw	Battery holder for Anton/Bauer battery (pre installed)
Wall mount adaptor	AC adapter, VF cable, Rack mount adaptor, Battery

■ Other Manufacturer's Products (for BT-LH910G)



EMA-910G
Rack Mount
Adaptor



**HYTRON 50
DIONIC HC**
Anton/Bauer Battery



E-HL9/HL9S
IDX Li-ion Battery
ENDURA

*NOTES REGARDING THE HANDLING OF P2 FILES USING A PC

Mounting and Transferring Files

The PC must be installed with the included P2 driver in order to recognize, copy and transfer P2 files. This driver is also necessary when using the PC card slot and when handling P2 files stored on a hard-disk device, such as P2 store. For other operating requirements, refer to the P2 installation manual. The P2 driver and the P2 installation manual can be downloaded free from a Panasonic website. Visit <http://pro-av.panasonic.net/> and click "P2 Support and Download."

Preview and Nonlinear Editing

To preview (play) P2 files on a PC, it is necessary to install P2 Viewer software (downloadable for free, for Windows only) or P2 CMS content management software (downloadable for free, for both Windows and Mac), both from Panasonic, or P2-compatible editing software available from other companies (for details, visit http://pro-av.panasonic.net/en/sales_o/p2/partners.html). Note that each software places specific requirements on the operating environment, and the operating environment must meet additional requirements to play and edit HD content on Windows PCs and Macs. For P2 Viewer or P2 CMS download and operating requirement information, visit <http://pro-av.panasonic.net/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

Note Regarding 24 bit Audio

Clips recorded using 24 bit audio must be played back with 24 bit compatible P2 equipment or the P2 Viewer/P2 Viewer Plus. If clips are played back with equipment not compatible with 24 bit audio, the clip number will be indicated in red and the clips will not be played back. A P2 Viewer not compatible with 24 bit audio will not reproduce the sound properly. To play back those clips, use the latest version of P2 Viewer/P2 Viewer Plus. For the latest information on 24 bit compatible P2 equipment and P2 Viewer/P2 Viewer Plus, see "Support & Download" on the Panasonic website (<http://pro-av.panasonic.net/>).

Precautions When Using SDHC/SDXC Memory Cards with the AJ-P2AD1G Memory Card Adapter

•Only the DV, DVCPRO, DVCPRO50, and AVC-Intra50 recording formats can be used when using the Memory Card Adapter on P2 Series products. Memory cards of Class 10 or higher are recommended, but recording may not be possible with some cards. •DVCPRO HD and AVC-Intra100 cannot be used. •Memory card data capacity must be 4 GB to 128 GB. •Interval Rec, One-Shot Rec, Loop Rec, or One-Clip Rec cannot be used. •If the recording performance is insufficient during playback, frames might be skipped (Best-effort playback). •When copying clips that extend over two SDHC/SDXC memory cards onto another SDHC/SDXC memory card, the connecting relationship between the cards will not be saved. Under certain conditions, the connecting relationship between original and copied SDHC/SDXC memory cards is saved.

"P2", "AVC-ULTRA", "AVC-Intra", "AVC-LongG", "AVC-Proxy", "DVCPRO HD", "DVCPRO 50" and "DVCPRO" logos are registered trademarks of Panasonic Corporation. AVCHD and the AVCHD logo are registered trademark of Sony Corporation and Panasonic Corporation "Blu-ray Disc" and the Blu-ray Disc logo are trademarks. Dolby and the double-D symbols are trademarks of Dolby Laboratories. DV Logo is a trademark. DVCAM is a registered trademark of Sony Corporation. XDCAM is a registered trademark of Sony Corporation. FOCUS and FireStore are registered trademarks of FOCUS Enhancements, Inc. HDMI and the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC. Leica and Dicomar are registered trademarks of Leica Microsystems IR GmbH. The Linear Tape Open 3 logo is a registered trademark. miniSD is a trademark of the SD Card Association. SDHC logo and SDXC logo are trademarks of SD-3C, LLC. Linear Tape-Open, LTO, LTO logo, Ultrium and Ultrium logo are registered trademark of Hewlett-Packard Company, International Business Machines Corporation and Quantum Corporation. UniSlot (R) is a trademark of Ikegami Tsusinko Co., Ltd. Apple, Macintosh, Mac OS, Quick Time, Final Cut Studio, iPhone and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries. Adobe, the Adobe logo, Adobe Creative Suite and Adobe Premiere are either trademarks or registered trademarks of Adobe Systems Incorporated. Avid Xpress, Media Composer, and NewsCutter are trademarks registered in the United States of Avid Technology, Inc. or its subsidiaries. Canopus, EDIUS are registered trademarks of Canopus Co., Ltd. MediaConcierge is a trademark FOR-A Corporation. Intel, Celeron, Pentium, Core and Xeon are trademarks of Intel Corporation, registered in the U.S. and other countries. MainConcept is a registered trademark of MainConcept AG. Matrox is a registered trademark of Matrox Electronic Systems Ltd. Microsoft, Windows, Windows Vista, Windows Server and Direct X are registered trademarks of Microsoft corporation. Omneon, Omneon Video Networks, and the Omneon logo are registered trademarks of Omneon Video Networks, Inc.

Panasonic®

Panasonic Corporation AVC Networks Company
2-15 Matsuba-cho, Kadoma, Osaka 571-8503 Japan
<http://pro-av.panasonic.net/>



Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)